


UNIV. OF
TORONTO
LIBRARY



Digitized by the Internet Archive
in 2010 with funding from
University of Toronto

PULP AND PAPER MAGAZINE OF CANADA

Vol. 8.—No. 13. TORONTO, JANUARY, 1910.

{ \$1. A YEAR
{ SINGLE COPY 10C.

Pulp and Paper Magazine

A monthly magazine devoted to the interests of Canadian pulp and paper manufacturers and the paper trade
SUBSCRIPTIONS: Canada and British Empire, \$1.00 per year United States and Foreign, on account of postage \$1.50 per year.

The Pulp and Paper Magazine is published on the second Tuesday of each month. Changes of advertisements should be in the publishers' hands not later than the 1st of the month, and, where proofs are required four days earlier. Cuts should be sent by mail, not by express.

BIGGAR-WILSON, Ltd.,
PUBLISHERS

OFFICES, CONFEDERATION LIFE BUILDING,
TORONTO, CANADA.

RICHES OF NORTHERN QUEBEC.

The article in this number upon the natural resources of Quebec's Hinterland, written by R. O. Sweezey, an engineer who has thoroughly explored that vast district and travelled along practically all the waterways flowing into the St. Lawrence and James Bay, will be read with particular interest by those who know and realize what her pulp-wood resources mean to Canada. They will be reassured to know that there is a vast area of Northern Quebec which is as rich if not richer in pulp timber than any equivalent area in the valley of the St. Lawrence. Moreover, Mr. Sweezey is authority for the opinion that the Transcontinental Railway runs westward from the St. Maurice River through the greatest spruce country in the world. An unfortunate aspect however of this great

railway enterprise is that it destroys the feasibility of developing some of the finest water powers in the Province of Quebec, for running as it does for many miles along the banks of the St. Maurice, already subject to annual damage by spring freshets, it interferes with the building of dams and power stations. There are, however, many large water-powers only a few miles north of the railroads, and the intervening country offers good facilities for the construction of railway branches; while the rivers and lakes are navigable for many miles both to the north and south. "This great region," we are told, "offers many inducements to the pulp and paper manufacturer; cheap power, virgin forests, inexhaustible if properly worked, short, easy log drives, good railway facilities and comparatively short railroad haul to Quebec harbour."

As to the objection that the resources possessed by Northern Quebec in the shape of pulp-wood areas are too distant to be readily accessible, he reminds us the logs are now floated down in the Ottawa River from 100 to 350 miles before they reach the mills, while in the districts spoken of log cutting can be begun directly on the site of future paper mills. Look also at the tremendous haulage pulp-wood is subjected to before it is utilized in some of the American mills.

115505
21/9/11

Mr. Sweezy touches on another and a serious side of the question when he speaks of the terrible danger to the forest from fire and his suggestion in this regard may be studied with benefit, though perhaps his allusions to the shortcomings of many of the men who generally act as fire rangers are a little too sweeping.



NEWFOUNDLAND IN LINE.

It is satisfactory to learn that the Newfoundland Government intends to remain firm against the threats and blandishments of those whose interests lie in separating the Island from its natural resources. The late Bond Government inaugurated the policy of prohibiting the export of pulpwood from Labrador. It was believed and hoped by many, however, that this policy would be abrogated or altered in some shape by the Morris Government now in power. In fact it is understood that several changes of ownership of Labrador timber areas are being held up awaiting a decision in favor of this step by the Government. There are also many applications on hand for large timber areas in that region, which were made on the understanding that the prohibition would be lifted. Now, however, the Premier has announced that it is not the intention of the Government to make any change of policy in this respect. This is surely a wise position. With the United States becoming yearly more and more dependent on other countries for the raw material wherewith to operate its paper mills, and with such vast stores of pulpwood in conjunction with good waterpowers existing in Newfoundland it

will be but a comparatively little time before that Island becomes one of the greatest pulp and paper producers on earth. Indeed, with the great Harmsworth mills in operation, and others being constructed, it is already within sight of that goal. Labrador has additional stores of pulpwood within easy reach of Newfoundland and it would be a pity for it to be shipped away for the benefit of foreign paper makers.



WEIGHT AND STRENGTH OF NEWS PAPER.

John Norris, of the American Newspaper Publishers' Association is carrying on a new line of strictures on the manner in which paper manufacturers carry on their business. He claims to have made tests on the weight and strength of over 300 samples of news print made by 52 mills in the United States and Canada. Of these, 35 per cent. were within reasonable limits of weight, while 26 per cent. were below and 39 above reasonable weight, upon the mill basis of 32 pounds for 500 sheets of 24 by 36 inches. In other words, many mills would appear to bring up their paper to the requisite strength by means of excessive weight, which is thus an additional tax on the buyer; while other mills sell paper which, notwithstanding its excessive weight is inferior in strength. These wide variations which he finds exist in weight and strength, Mr. Norris contends, are inexcusable. He suggests that if the mills cannot keep to a standard naturally they should make constant use of a tester. He gives it as a startling commentary on the

prodigal methods of American paper manufacturers that while they require 110 lbs. of raw material to make 100 lbs. of news print, the English and German makers require but 103 lbs.; and the sore point with him is that the newspaper publishers have to pay for this excess or waste material to the tune of \$2.10 per hundred.



FORESTRY WORK IN DOMINION FORESTS.

Exploration of the great Northern Forest Belt, extending from Hudson's Bay to the Rockies, a distance of 1,000 miles, with a breadth of about 400, and its protection from fire are important points emphasized by R. H. Campbell, Superintendent of Forestry, in his report lately laid before Parliament. Judging from the cost (\$40,000) of the exploration of New Ontario in 1900, the cost of a similar exploration of this country would be \$200,000, which, spread over a period of ten years, would mean an annual expenditure of only \$20,000. In this connection it may be pointed out that while the forest service of the United States has an appropriation of \$4,640,000, and a permanent staff of over 2,000 persons; that of Canada, covering an even larger area, has an appropriation of only \$100,000, and a permanent staff of forty.

A start has been made in the protection of the forests of this tract from fire. Rangers are now kept on the Athabasca, Great Slave, Peace and Lesser Slave Rivers, in the district of the Pas (Sask.) and in the country north of Prince Albert, Sask., up to the Churchill River

and including Lac la Ronge, the scene of considerable mining prospecting.

The only method of fire protection so far found practicable in the forested districts is a patrol by rangers, who travel their beats, put out small fires and summon help to put out large ones, and warn campers and residents of the danger of setting out or neglecting fires. A special patrol was maintained along the line of the G.T.P. during the summer of 1908, and as a result no serious fire occurred. It will be necessary to take similar precautions along many other lines of railway projected in the West.

This work of fire protection is perhaps the most necessary of all the work of the Forestry Branch. The importance attached to it can be seen from the fact that the number of rangers was increased from 47 in 1907 to 82 in 1908. If, however, the work is done in anything like an adequate manner, the system must be greatly extended, and much more money spent.

The spring of 1911 will, it is expected, see the introduction of a new feature in the work of tree distribution, namely, the distribution of coniferous trees, those it is proposed to distribute at first being the white spruce, jack pine, Scotch pine and lodgepole pine; to those it is hoped shortly to add the tamarack or native larch. In the past spring's distribution over two and a half million trees were distributed from the Forest Nursery Station at Indian Head, Sask., to 2,010 applicants. New applicants for trees to be delivered in the spring of 1910 number 2,235. The recently established office of the branch at Indian Head now takes direct charge of all applications for trees, which formerly were handled from Ottawa.

QUEBEC STANDS PAT.

Last June when Sir Lomer Gouin announced the Quebec Government's intention to prohibit the export of pulpwood from Crown Lands, the Premier made himself sufficiently clear to show to those who knew him that he really meant what he said. However, judging perhaps rather by their inclinations, rather than their true belief, some of our American friends expressed doubt as to whether such a policy would ever be carried out. Even in Canada it was thought by some that the United States as a counterblast to this legislation, would impose such extra duties as would make Quebec wish "it never had." Since that time events have shown that the Americans have a much larger stake in averting anything approaching the nature of a tariff war than even Canadians; indeed, they showed far greater trepidation at the possible effects of their new tariff law than has been manifested in this country. President Taft went out of his way to state how far it was from his administration's purpose to jeopardize the present trade relations between the two countries. And so the United States apparently have become reconciled to the force of the truth that he who holds the winning cards must be allowed to win.

Be this as it may, any lingering doubt has been dissipated by the recent utterances of Sir Lomer Gouin and Honorable L. A. Taschereau, Quebec, Minister of Public Works and Labor. At the Whitney banquet, an occasion, be it noted, at which the Premiers of the sister provinces of Ontario and Quebec, opposite in politics though they be, fraternized in a fashion to give joy to the hearts of all Canadians who believe in

the "Larger Canada," Sir Lomer, in paying a compliment to the forest policy of Ontario stated that he was going to follow that example concerning the export of wood cut on Crown Lands. Not with the intention of discriminating against anybody but simply with the idea of getting the greatest possible returns from their forests. This, he believed, would bring a new class of immigration into Quebec, a class requiring no medical inspection or quarantine, the immigration of pulp and paper mills.

Mr. Taschereau was even more emphatic in his references to the new policy, which he announced would come into force on September 1st next. "The Province of Quebec," he said, "holds the key to the situation in its 200,000,000 acres of forest land under the Crown and will receive orders from no one as to the policy it is to enact." Mr. Taschereau recently made some gratifying announcements as to the energetic forest conservation policy which is to be inaugurated by the Quebec Government. With proper care taken of the forests allied with a sensible self-respecting adjustment of tariff regulations to make the best use of its provincial assets, Quebec will grow enormously in wealth and influence, to the benefit of the whole Dominion. It now remains for New Brunswick, which is contemplating pulpwood restriction, and for the other provinces to fall into line.



THE GIFFORD PINCHOT EMBROGLIO.

So far as we in this country know the facts Canadians are in sympathy with

Gifford Pinchot, late Chief Forester of United States, in his quarrel with politicians. Mr. Pinchot has for years been a forestry enthusiast, and, aided by his friend ex-president Roosevelt, carried on an unremitting campaign against the interests allied against the conservation of forest and other natural resources of the nation. The end of a long quarrel with his superior officer, R. A. Ballinger, secretary of the Interior, over the Government's policy of consecration, is his resignation, or rather dismissal, by President Taft, recently announced but it is believed the chief reason for this is in order to allow him a free hand apart from official bonds in his fight against his maligners. If past persistence and energy be any guide, he is fairly sure to emerge triumphant in the



CAUSES OF INCONSISTENCY OF PULP.

One of the most important causes of the non-uniformity of the pulp is the constant changing of the quality and nature of the raw material which is used for making the same class of paper, says T. Hadfield, writing in Paper Making. In the manufacture of news and printings, mechanical and sulphite pulps are the chief fibrous materials. It is not generally taken into consideration that these raw materials vary in nature and strength and substance. Pulp made from the pine and the poplar have much stronger fibres and contain less resin and lignin than pulps made from other kinds of wood. Therefore the pulps will require longer preparation in the beater than inferior pulps.

Each consignment of pulp should be analysed and sampled, and the good and inferior pulps kept separate. In some mills rags are used with mechanical pulp, and less sulphite used. In many cases the rags are not graded, and consist of different qualities of cotton rags

with a small percentage of linen. The linen rags should undergo a longer and more vigorous treatment than the cotton, both during the manufacture into half-stuff and in the beaters.

In some mills the rags are generally all mixed and boiled together, and undergo the same time and treatment in the beater as the mechanical and chemical pulps, and this system is very largely the cause of non-uniformity of the paper pulp.

The darker shades of sulphite pulp will require longer preparation in the beater than the highly bleached qualities, as the latter quality is obtained at the sacrifice of much of the original strength and elasticity of the fibres. Highly lignified pulps should be avoided, as it is this lignin which is the cause of change of color in the finished paper. A paper containing much lignin is diagnosed by suspending a sheet of paper to the light for a short time; examine the paper a little while afterwards, and it will be found that the shade varies. Aniline sulphate is a good test to determine if a paper contains much lignin; a solution of this substance turns the paper yellow. The deeper the color the greater the amount of lignin present. Lignified celluloses should be avoided where purity of shade is of first importance.

In the manufacture of best writing paper various fibrous materials are used, but where esparto and linen half-stuffs are put into the beater at the same time the esparto fibres will be hydrated long before the linen fibres are in a fit condition for making paper. It is this mixing of different qualities of half-stuffs which is one of the most important causes of the variation in the consistency of the pulp. The materials selected and blended together should be of such a nature that the whole of the half-stuff put into the beaters will be evenly beaten up in the same time.

For water-marked papers the nature and same proportion of stuff should be used in each engine, also the same time

and treatment allowed for beating, for if the stuff is let down alternately "long" and "short" then the machineman will be in constant trouble as to the allowance made for the contraction and expansion of the paper. For instance, a fine engine may draw in the sheet one-eighth of an inch or more, while stuff not properly milled would cause the paper to expand in the same proportion.

Almost the whole of the back-water is used over again in new mills; this is the principal cause of much froth on the machine. The items which aid in the formation of froth are newly prepared size, accumulation of alum in the back-water, use of steam in the beaters, chlorine compounds, excess of starch, and the nature of the clay, dyes, etc. Too much froth causes an irregular flow of stuff on the machine, causing variation in weight and much "broke." Froth could be greatly prevented by using a size as free as possible from sodium carbonate, and by using clear, fresh water on the machine, also for filling and emptying the beaters.

In the making of unsized paper and the best quality papers no back-water should be used, and especially where they change from an inferior to a good quality of paper.

In the manufacture of highly glazed papers highly lignified celluloses should be avoided; if the material selected for making this class of paper is based upon this principle, aided with well-milled and beaten pulp, the right percentage of white soap, starch, and other loading materials; here lies the nucleus for a well-finished paper as far as the beating process is concerned. It will be found that the uniform quality of the half-stuffs, purity of loading materials, dyes, etc., combined with uniform treatment in the beaters and due care in the limitation of back-water, are the chief items in the vital stage of any class of paper, viz., beating.

Beating engines with the following advantages help greatly in the making of a uniform pulp:

1. The beating-roll should not be too heavy (this saves power and better action in milling the stuff).

2. Should have a high-back fall, and should not be too deep between bed-plates and roll.

3. There should be three angular bed-plates fixed in circular form, so as to act in conjunction with the roll like a pair of scissors; where angular bed-plates are used the pulp is more evenly beaten.

4. There should be a mechanical arrangement to let off the stuff, and so prevent clogging. The beater should be free from crevices, and so constructed as to secure perfect mixing as well as circulation.

5. There should be a micrometric arrangement for adjusting the beating-roll.



ASBESTOS BOARDS.

Asbestos may be sorted into two kinds of fibre, long and short. While the long-fibred varieties are the most valuable for textile purposes, the ordinary short-fibred sorts are available for the manufacture of asbestos millboards. The raw asbestos is first milled in the edge runner and then in a hollander with broad knives, with the addition of 10 to 20 per cent. of strong rag stock, in order to strengthen the board without materially lowering its resistance to fire. But if the board must not contain any combustible fibres, glue, starch or other binding agent is added. The stuff chest is fitted with the simplest form of stirrer since a rapid stirring is not required. According to the older method of working the asbestos board was made on the Fourdrinier machine and pressed until it contained 50 or 55 per cent. of moisture, being reeled up immediately after passing the reels and dried in lofts. The modern asbestos millboard machines are built with cylinder drying apparatus. These machines are constructed almost exactly on the lines of a paper machine, but the strainers and

shake-frame are omitted. The number of tube rolls under the wire is less than usual, but their diameter is larger. There is generally only one slice for the distribution of the stuff. "The wire has a coarser mesh, and the wet press felts are of coarser texture than on a paper machine, not merely for cheapness but also for better penetration. Generally no drying felts are used, but sometimes cotton felts are met with which are more suitable and last longer than woolen felts. The latter require special felt driers, otherwise they rapidly deteriorate. If no drying felt is used, a special press roll is provided on each drying cylinder to press the web in contact with the hot surface, and to give it a certain amount of tension. The mill-board is dried until it contains about 20 per cent. of water, and is then reeled and cut up if required.



ALLEGED PAPER COMBINE IN UNITED STATES.

Indictments are to be returned against the alleged combination of manufacturers of news print paper in the United States.

The charges with which the publishers are presented are, in part:—

Restrictions of forty-six news print paper mills in the use of news print paper, making impossible either an open market or public quotations of paper prices.

Action of news print paper mills east of the Rocky Mountains in refusing to sell free on board at mills for spot cash, or in quoting excessive prices because presumably it would interfere with a "gentleman's agreement."

Refusal of many news print paper mills to sell other than thirty-two pound paper.

Restrictions of contracts by many mills to one year periods, and inclusion of wrappers on rolls in actual gross weight to be paid for.

"Trade customs" adopted by paper makers, and used by them as the basis for concerted action in regulating prices.

Reported agreement upon news print paper price by two large paper-making concerns.

Action which seems to be contempt of court by former members of the General Paper Company, and of the fibre and manilla pool, through disregard of injunctions of prohibition.

Mr. Norris, for the American Newspaper Publishers' Association, who is behind the present attack, has already furnished the Federal authorities with evidence on which the wrapping paper and the boxboard paper combinations were indicted and pleaded guilty.



La Compagnie de Pulpe de Chicoutimi, Chicoutimi, Que., write us correcting a paragraph which appeared in last issue concerning the report that they were about to build an electric railway from their mills to the Riviere du Moulin district. They have no intention of building any kind of railway either at present or later. The facts are that the Ha! Ha! Bay Railway Company, a company incorporated for the very purpose of building the railway in question is now proceeding to build a steam railway from St. Alphonse to Jonquière. They have started the work, having given the contract last summer to Messrs. O'Brien, Gagné & Jennings, railway contractors, and their road-bed with the attendant culverts is practically finished from St. Alphonse to Chicoutimi, at a point very close to the above mills. The work is being continued through the winter, and it is expected that the rails will be laid early next summer and that the railway will be in operation before the end of the summer. It is to be operated by steam, and tenders have been asked by the company for the purchase of three steam engines. We regret that we helped to circulate the previous erroneous report.

PULP AND PAPER NEWS

The Brompton Pulp & Paper Company, East Angus, Que., report a good demand for their Kraft paper.

* * *

The Voice Publishing Company's premises in Winnipeg have been seriously damaged by fire.

* * *

The Don Valley Paper Mills, Toronto, are completing arrangements for the manufacture of paper bags.

* * *

Prescott ratepayers voted in favor of granting concessions and a small bonus to induce an Ogdensburg soda pulp factory to locate in the town.

* * *

The J. Christie Company, Toronto, agents for soda pulp, paper stock, etc., report business good, and that the prospects for a splendid year's trade were never better than they are to-day.

* * *

The Canada Paper Co's. transmission line from Shawinigan Falls to the plant at Windsor Mills, Que., has been completed and the motors installed. Everything is working satisfactorily.

* * *

The Murray Bay Lumber & Pulp Company, Ltd., has been authorized by the Dominion Government to change its name to the East Canada Power and Pulp Company, Ltd., and to increase its capital stock from \$500,000 to \$1,500,000.

* * *

Joseph A. Bothwell, who has been in charge of the Quebec and St. Maurice Industrial Company's office, at Sherbrooke, has resigned to take the management of the Brompton Pulp & Paper Company's plant at East Angus, Que.

* * *

The Quebec Government's announced intention to restrict the export of pulpwood from Crown Lands has stimulated heavy cutting in Three Rivers and other districts of that province. Logging is now well under way, the supply of men being ample.

Petite Riviere Lumber Company, Ltd., Quebec City, capital \$50,000, has been incorporated to carry on business as lumber merchants, manufacture and sell pulp and paper, etc. L. Letourneau, of Quebec, and E. Lamontagne, of Limoilou, Que., are charter members.

* * *

With reference to the News Pulp and Paper Company, notice of organization of which in Montreal was given in last issue, the following are named as charter members: G. G. Foster, J. T. Hackett, T. J. Coonan (secretary), K. Archibald, and T. B. Gould, all of Montreal.

* * *

At the Anglo-Newfoundland Development Company's mills at Grand Falls, Newfoundland, the first paper was produced on the 14th ult. and was fully up to expectations in every way. It was "core" paper and it is expected that actual newspaper will be turned out within a short time.

* * *

The St. Lawrence Paper Company, Mille Roches, Ont., have decided to more than double the capacity of their plant by installing a large book machine as well as other machinery. Not much change will be required in the buildings, as the mill was originally intended for two machines.

* * *

W. J. Gage, president of W. J. Gage & Company, Ltd., wholesale books and stationery, has been elected president, and John F. Ellis, managing director of Barber & Ellis, Ltd., wholesale stationers and paper manufacturers, has been elected treasurer of the Toronto Board of Trade, both by acclamation.

* * *

The Nominique Pulpwood Supply Company, Ltd., Montreal, capital \$20,000, has been incorporated to construct and operate pulp and paper mills and to buy and sell and prepare for market pulp and wood of all kinds. A.

Ecrement and C. Avila Wilson, Montreal, advocates, are among the names mentioned.

* * *

The Albany Securities Company, which is interested in extensive pulp-wood areas and water powers in Outaouais, and other parts of Quebec Province, is getting ready to market pulp-wood and wood pulp on a large scale in the United States. John A. Dix is president and Lewis R. Parker, secretary, with offices in Albany, N.Y.

* * *

The deal for the purchase of the Adams-Burns Company of Bathurst, N.B., by the Nepisiquit Lumber Company, has now been completed and arrangements have been made for the building of a large new lumber mill. There are extensive pulp-wood tracts on the property. The Robertson timber limits of 144 square miles along the Nepisiquit River have also been purchased.

* * *

The Brooks-Scanlon Lumber Company of Minneapolis, which recently acquired 140,000 acres of pulp-wood limits on Vancouver Island and the mainland from the British Columbia Government, with the intention of erecting pulp and paper mills, has now filed a cash bond of \$50,000 as a guarantee. It is now erecting a pulp mill. It has water power sufficient to produce 40,000 to 50,000 horse-power.

* * *

The E. B. Eddy Company, Hull, now enforces a compulsory examination of their girls' teeth. Every female worker in the match shop has to undergo once a week a specialist's examination. Every defect is reported on a slip which is handed to the patient and the latter is obliged to have it remedied as quickly as possible at her own cost, in accordance with the provisions of the law of the Province of Quebec.

The case of Bartram Bros., Ottawa, against the Riordon Paper Mills Company, of Hawkesbury, for alleged breach of contract to the extent of \$2,000 was heard at Hull. Bartram Bros. allege they were engaged by the Riordon Company to cut a quantity of timber in Labelle township. When they were about to start work, had the men hired and outfits ready, it was discovered that the lot they were about to commence work on belonged to the MacLaren Company. The Riordon Company immediately ordered Bartram Bros. to stop work, and the action concerns the amount of remuneration due them.

* * *

It is expected that J. R. Booth's new board mill, in Ottawa, will commence operations in the course of a few weeks. The installation of the machinery is practically completed and the ultimate capacity of the mill will be about forty tons per day. The commencement of operations now awaits the completion of a new power plant, the equipment of which is being installed as rapidly as possible. The output for which the mill is designed is probably in excess of the requirements of the country, so that it is presumed that an export market is available, notwithstanding the possibility of a hostile tariff in the United States. Frazil ice and severe winter conditions have interfered to some extent with the mills of late, the operations of the Eddy Company being also somewhat hampered.

* * *

In the project to build a Hudson Bay Railway the government engineers have expressed a preference for the route to Port Nelson rather than Fort Churchill. The former route is 61 miles shorter and runs through a much better country for settlement. It is anticipated that the route would be available for steamers four or five months in the year. It traverses considerable areas of pulp-wood.

* * *

E. P. McGrath, of St. John's, Newfoundland, expresses the opinion that within five years every river near the

seaboard in Newfoundland with any sort of an adequate water power will have a pulp and paper mill established upon it. At Grand Lake, Deer Lake, Hawke's Bay, Bay D'Espoir, and other places, are tracts which can be profitably developed. Mr. McGrath is confident that the Island Colony is destined to become one of the world's greatest paper mill centres.



MANUFACTURE OF PASTEBOARDS

The substitution of wood pulp for the rags which were formerly used for the preparation of fine pasting papers has involved suitable alterations in the methods of manufacture. In the days when pasteboards were made only from rag papers, and pasted by hand, the trouble caused by curling and cocking was comparatively rare. It is desirable to have large hollanders of five to six cwts capacity, but they should be so constructed that the circulation does not suffer when they are furnished with 10 or 15 per cent. more stuff. On the paper machine the greatest care must be taken to ensure that the paper is of uniform substance across the web. The drying arrangements should be on a very liberal scale in order that the paper may be dried slowly, but still it should arrive somewhat moist at the last drying cylinder, which in many mills is ten or twelve feet in diameter and only moderately heated. The paper must be evenly dried, but over-dried paper is as bad for pasting as too moist paper. Paper which is too moist makes cockles on the pasting machine, while paper which is too dry makes creases. In both cases the reels run out of the straight and do not take up the paste evenly, so that some places are too thinly pasted and do not stick properly. For the same reason the reels must be very tight and evenly rolled, so that the paper runs off smoothly. Uneven application of the paste causes uneven drying of the boards, and the damp patches cause waviness. The board should leave the

pasting machine absolutely dry and should then pass to the damping machine; if it has been thoroughly dried it will not curl, but if only imperfectly dried in parts it will become wavy. If the reels of paper have not been reeled on a special machine, they should be allowed to mature for a considerable time before pasting. Badly rolled reels become flattened if stacked, and the jerkiness thus caused on unreeling at the pasting machine is a sure source of uneven pasting. With a badly rolled reel the machine tender can do nothing, the webs run out of the straight and drying cylinders become fouled with paste from the edges of the paper. The pasted and damped boards should be allowed to remain for at least twelve hours before being pressed, in order that the moisture may have time to distribute itself; this is not the case when the boards are subjected to heavy pressure immediately after damping. The boards should be stored for some time before glazing in a cool room with an atmosphere suited to the moisture of the boards, protected from draughts and heat, the temperature being kept as constant as possible, otherwise the edges will become wavy, creases will be formed and the calender bowls spoilt. After finishing, the boards are very sensitive to unsuitable atmospheric conditions of storage and are especially liable to curl if allowed to lie too long in the hot printing rooms.



The United States Post Office Department proposes to raise the rate of postage on magazines and periodicals in order to make good part of the annual deficit in that branch of the service. Even the daily newspapers, which are not affected by the proposal, are opposed to such a step. They take the ground that the deficit should be remedied not by placing an additional tax on knowledge, but by cutting out obsolete business methods on the part of the Department and by preventing the overcharge on and overweighting of mail matter by the railways.

TREATMENT OF WASTE PAPER.

An English patent has been granted to Ludwig Herz relating to an improved process for the treatment of waste paper, whereby such waste paper can be freed from coloring matters, inks, printer's ink and printer's colors, and whereby such waste paper as well as fibrous materials such as cellulose, wood pulp, and textile fibres, may be reduced without grinding and by cold or warm process without boiling, to paper pulp which is capable of being used again for the manufacture of new paper.

It has hitherto been proposed to remove colors, printed matter, etc., from waste paper and fibrous material by energetic agitation with soap water and subsequent washing, and to remove printing and writing ink from waste paper by agitating with a mixture containing spirits of turpentine, bleaching liquid and soapsuds, or as an alternative, soap, ammonia and American potash or their equivalents.

This invention is carried out as follows: The waste paper, with or without printing or writing thereon or textile fibres, such as rags, jute, etc., are placed into a mixture of caustic soda (NaOH), ammonia (NH₄OH) and water (hereinafter referred to as the aforesaid liquor), and allowed to remain therein for a short time (5 to 10 minutes) with or without stirring, and then washed in the washing engine or similar apparatus without grinding and so converted into paper pulp. The liquor may be used cold or tepid, the preferred proportions of the constituent parts being preferably as follows: For one cubic metre of water 3 to 4 kilogrammes of caustic soda and 1 gramme of ammonia, the ammonia being employed to prevent the caustic soda becoming crystallized when the pulp is transformed into paper, since the liquor is employed in a cold or tepid state.

In cases where it is desired to work up the resulting paper pulp into high-class paper the waste paper or the textile fibres

may be subject to bleaching process in the ordinary way by means of chlorine water, after the aforesaid reducing and washing processes.

Owing to the fibres and cellulose matter being completely reduced by the previous treatment with the liquor above referred to, the efficiency and yield of the bleaching process are much greater than without such previous treatment.

For the manufacture of medium quality paper, such as for newspapers, the bleaching process is not necessary, because the treatment with the liquor and subsequent washing has extracted the coloring matters to such an extent as to produce a paper pulp sufficiently white for these purposes.

After the treatment with the liquor, whereby the coloring matter has been extracted from the waste paper, etc., but before washing the latter, the liquor may be run off for re-use.

It is claimed that an important and advantageous feature of this invention is that the improved process is carried out in the cold or comparatively cold state, without boiling and without steam pressure, and without necessitating a bleaching process, whilst the dissolving and detaching of the ink, printer's ink and coloring matters of all kinds, are effected chemically and mechanically by washing as above described.

A further feature which is of great commercial importance is the cheapness and very short duration of the improved process.

As an example of the great efficiency of the improved process it may be stated that brown wood pulp, which can be bleached only at very great cost, by the usual process, can now be bleached very simply and cheaply after treatment by the improved process which frees it from all adhering rosin.

Whereas it has been possible hitherto to convert textile fabrics into paper pulp only by boiling, it is now possible to do this according to the present invention by cold process.

WAVY EDGES ON IVORY CARD-BOARD.

In the *Papier Zeitung* an expert describes a case of an ivory cardboard which showed wavy edges, doubtless due to improper storage. The preparation of a good pasting paper requires great experience on the part of the papermaker. The right condition of beating, suitable sizing and careful manipulation on the machine are essential, and the work on the pasting machine must be adapted to suit the condition of the paper. The degree of moisture in the paper, cautious but thorough drying after pasting, the cooling, damping and subsequent glazing of the board are all points of the highest importance. If these points are properly managed the cut boards will lie flat and will remain flat provided the temperature and moisture of the surrounding air correspond with the temperature and moisture of the boards so that the stack has no opportunity to become drier or moister on one side than the other. For the storage of pasted boards a cool damp atmosphere is generally advantageous; dry, warm rooms are not so good. Above all, draughts must be avoided. Boards should be packed for dispatch in strong wooden boxes, which should only be opened shortly before the boards are to be printed, in order to avoid evaporation. The papermaker is not often to blame in the case of wavy edges, and it very frequently happens that the boards leave the paper mill perfectly flat but become wavy through unsuitable storage in the printing warehouse. Another expert points out that the manufacture of the paper is seldom at fault; the cause of wavy edges, apart from unsuitable storage, most frequently lies in the pasting operation, for instance: unequal drying.

H. Postl, writing in the *Papierfabrikant* on this subject, says that fluffing is such a grave defect that the printer is always willing to pay a little more for paper which is free from this fault. Some raw materials are more liable than others to give papers which dust when

printing, but it is not always possible to rely on obtaining a raw material which is free from objection. The dust consists of loosely held, minute fragments of fibres, as well as of particles of sizing and loading materials. The reason why these particles are not held by the paper is because the stuff is not beaten sufficiently "wet," either because the beater knives are too sharp or the beating has been hurried. Another cause is bad felting on the wire owing to insufficient dilution of the pulp; also insufficient pressure on the couch rolls and presses. In no kind of paper is the felting on the wire ideal; there are always small particles which lie quite loosely on the sheet, and others which stand up from it, so that freedom from fluffing can only be ensured by subsequent pressing.



—Among the calendars which have been sent to this office and which we have received with appreciation is one from Sadler & Haworth, Montreal, Toronto, St. John, Winnipeg, and Vancouver. The illustration is particularly apt as it represents workmen in the act of making a 72-inch 3-ply belt. The firm are known everywhere as manufacturers of dependable oak leather belting.

—The railroads have withdrawn commodity rates on imported paper stock to western points. The changes in classification resulting mean heavy increases in freight charges. The rate on pulp, which was formerly 16½c. is now 21c., scrap paper and rags, former rate 12c. is now 21c. In cases where contracts have been made for future delivery, serious losses are looked for, jobbers' and importers' trade has been temporarily disorganized.

—The Quebec Bank has issued a writ against the old Sovereign Bank to restrain it from selling to E. R. C. Clarkson (the receiver and liquidator) or other parties the jack pine and spruce on property of Imperial Paper Mills, Sturgeon Falls. It also claims damages for wood already sold. The option held by American capitalists on the mills and limits expires on the 1st prox.

MANUFACTURE OF LAID PAPERS.

The manufacture of clearly marked papers requires a certain amount of special experience, and unless the stuff is correctly milled with the special object of making laid papers, no amount of manipulation on the machine will give the clear-cut lines which are desired. According to a writer in the *Wochenblatt*, not only the beating but the raw material must be adapted to the object in view. The harder and stronger the raw material, the more difficult it is to obtain clear markings. The stuff may be beaten too "free" or too "wet," and what is required is a condition mid-laid papers require a certain amount of way between the two. Laid papers should be run at slower speeds than wove papers. Further, the pitch of the laid lines has to be taken into account in preparing the stuff. With fine close lines the dandy roll may have no effect at all if the stuff be kept too long in the fibre. If the stuff too is "wet" the dandy roll will tend to raise the sheet partly off the wire and let it drop again, causing the paper to "buckle." When this occurs the pressure of the dandy must be diminished, and then there may be a danger of slipping on the paper and spoiling the appearance of the lines. If the stuff be too "free" it is difficult to retain sufficient water in the sheet as it comes to the dandy, and if this is corrected by adjusting the shake, thin edges may be the result. With very "free" stuff the dandy tends to pick off particles of the pulp, causing either holes or knots which latter generally appear along the longitudinal lines. In such cases the remedy consists in raising the dandy slightly and giving more spray water. In all laid papers a good strong suction after the dandy roll is essential, in order that the paper may come to the couch press as dry as possible. Coarsely ribbed dandy rolls readily let the stuff pass through the wires if it is milled too fine, and this is a cause of indistinct marking. In such

cases the stuff should be kept longer in the fibre, but should not be too "free." The thickness of the paper must also be taken into account, and the thinner the paper the "wetter" the stuff must be beaten. As a general rule the clearest lines are obtained with short fibres beaten moderately "wet."



WET PRESSES.

A practical papermaker, writing in the *Wochenblatt*, states that for the manufacture of the finer grades of paper it will always be found advantageous to have three wet presses on the machine instead of the usual two. Not only is the expenditure on wet felts materially reduced by the lighter pressure which can be used when three presses are available, but the marking of the paper by the felt when the nap does wear off is far less pronounced. When making papers which are particularly liable to felt marking, the use of three wet presses is almost indispensable. Blotting papers and "absorbings" are in this category, as well as particularly soft printing papers of the "antique" class. In order to make these papers at the highest speeds, even four wet presses are recommended. In these sorts the suction on the vacuum boxes must not be too great, since the bulk and absorbency of the paper would be thereby diminished. In the case of thick absorbent boards a top felt may be used with advantage. In the writer's experience a smoother working is obtained by arranging the top felt, not around the top couch roll, but around a roll about ten inches in diameter situated a little in front of the couch roll. The first press should be provided with a felt drier (suction box principle), which will do away with all tendency to sticking at the press roll. Stone press rolls are highly recommended; they last almost indefinitely and, with a properly arranged doctor, sticking to the press roll is practically impossible. Bronze press

rolls also work well, but tend to wear away rapidly since they cannot be kept clean enough by a light pressure of the doctor; rubber doctors can only be used in very rare cases.



RECORDING WORK OF BEATING ENGINES.

To insure the best results from the operation of hollanders continuous and well controlled methods are necessary. Efforts to reduce the percentage of general expenses to production will be vain if there is a loss of power through the unintelligent working of the hollander, while there will also be a loss through pulp escaping with the refuse. British engineers have given attention to the subject, and various methods have been introduced, the object aimed at being a reliable and uninterrupted control of hollander work, independently of the workmen and officials. A patent has been granted to Rudolf Lehmann relating to an appliance which automatically controls the work, registering the pressure used in grinding and the number of times it has been emptied, so that not only during operation, but for use at any future time, the working of the hollander is recorded. This feature is of particular service when it is desired to ascertain the exact process of manufacture of any previous lot of paper. In referring to this new appliance, the *Wochenblatt* says, the movable part of the grinding, lifting and lowering apparatus, as well as the escape valve, are connected in a practical manner with a clock-work movement, on which the operations of grinding, emptying, etc., are registered and recorded on slips of paper. The pressure in kilogrammes per square centimetre can also be shown. The new appliance obviates the irregular and unnatural working of the hollander, being of notable technical as well as industrial importance.

If a paper is poorly closed, or is not properly handled while upon the wire of the machine, it will not be up to its maximum bursting point, and by using more wire shake and more water it is possible to make it improve greatly. But care must be taken that the stuff does not crush or become broken while it is passing under the dandy roll, for this weakens it very much. The fibres should be well felted together and be firm. A strong suction should be carried upon the last suction box and the couch and press rolls should be heavily weighted, as these things make the paper more compact, and have the same effect upon it that does supercalendering. The drying of the paper should be gradual and uniform, and at no time should be forced. The sheet should be of the same thickness across its entire length, and streaks and light spots should be avoided. Clean felts should be on the machine to allow an evenly dried paper.



CONSERVATION COMMISSION.

The Commission of Conservation opens a four days' session in Ottawa on the 18th inst. Experts from the United States, as well as from Canada, are expected to be present and unfold their views on the important subjects which will be under discussion. Hon. Adam Beck has accepted an invitation to be present, and will, on the suggestion of Hon. Clifford Sifton, address the commission along the following lines: 1. The terms on which water powers are now granted by the Government of Ontario. 2. The exact scope of the hydro-electric legislation. 3. A short resume of the work which has been accomplished by the commission. 4. Remarks as to future policy. Hon. Frank Cochrane, who is a member of the conservation commission, will also be present at the session. Other speakers will be Dr. Fernow, Hon. J. A. Allard, Dr. J. W. Robertson, Dr. Haanel, C. R. Coutlee, C.E., F. T. Congdon, M.P., etc., etc.

NATURAL RESOURCES OF QUEBEC'S HINTERLAND.

By R. O. Sweezy, C.E.

At this time when the eyes of paper manufacturers are turned to Canada in search of forest treasures to supply the paper market of the future any reliable information tending to enlighten us in our vague notions concerning Quebec's north land must be welcomed by everyone. Of course, owing to the inaccessibility of the northern forests in the past it is not to be wondered at that lumbermen throughout the country know nothing of the great forest resources north of the height of land between James Bay and the St. Lawrence. But now that the Transcontinental Railway will soon open up this vast area it behooves us to learn something of the wealth to be tapped.

Some of the main waterways have been hurriedly explored and mapped out with some degree of accuracy but no steps have yet been taken to ascertain the quantity of spruce and other timber in that region. Many engineers have been through northern Quebec laying out the Transcontinental Railway in the past few years, but not being observant of conditions which would arouse the unbounded enthusiasm of lumbermen it is doubtful if one of them could to-day state positively whether or not there is any spruce timber of value in that country.

The writer, having traversed Quebec's hinterland from Lake St. John, at the head of the Saguenay River to Lake Abitibi, on the Ontario boundary, and having ascended and descended most of the waterways flowing into James Bay and the St. Lawrence, is able to state positively that in pulpwood resources a vast area of Northern Quebec is as rich if not richer than any equivalent area in the valley of the St. Lawrence.

The Transcontinental Railway which ascends the St. Maurice River for a distance of 75 miles north of La Tuque,

leaves that river at Weymoutacheugue and from here runs westward through the greatest spruce country in the world. The valley of the St. Maurice, which is unfit for cultivation, is well known and famous for its timber wealth and water-powers. Unfortunately, however, the location of the Transcontinental Railway has destroyed the feasibility of developing some of the finest water powers in the province; for the railroad, running as it does, for many miles along the banks of the St. Maurice and already subject to great damage every year by spring freshets, would interfere with the building of dams and power stations.

The railroad in its course cuts across the head waters of the St. Maurice and Gatineau, here entering the basin of the Hudson's Bay waters, and continues crossing the large waterways (flowing northward) at or near their heads. Many immense water-powers are, however, but a few miles north from the railroad with the intervening country offering the greatest facilities for the construction of railroad branches; while the lakes and rivers are navigable by steam-boat for many miles both on the north and south side of the railroad. This great region offers many inducements to the pulp and paper manufacturer; cheap power, virgin forests, inexhaustible if properly worked, short and easy log drives, first-class railroad facilities and comparatively short railroad haul to Quebec harbor.

The valleys of the Migiskén, Bell, the great Nottaway, Harricanan, Natagogan and the Abitibi district comprise a rich forest area of some (12,000) twelve thousand square miles. The timber is black spruce, white spruce, balsam, banksian pine and poplar. In parts the writer has made actual counts, averaging 25 cords to the acre not counting trees below 6 inches; while many spruces measured 26 inches in diameter, grown to

great length. All this wealth then remains untouched.

By some it may be thought that these resources are too far from the centre of industry, but these ideas would be proved absurd after a little reflection. Remember that the world must have paper, it is essential to our civilization, and while building material as a forest product, may be replaced by concrete and steel, pulp must be had to supply the increasing demand for paper, and the straw material cannot compete with sylvan growth. Therefore, where there exists such forest wealth the world must utilize it.

Consider the distance of 100 to 350 miles that logs are now floated on the Ottawa before they reach the mill—usually only the second season after cutting; and compare this with the fact that log cutting can be commenced directly on the site of future paper mills in Northern Quebec. Then a level rail haul of 400 miles from the centre of this region to Quebec harbor compares favorably with Ottawa's inland situation where paper is profitably manufactured. Moreover, if American paper mills can afford a rail haul of raw pulpwood for several hundred miles to their mills it is easy to figure out the chances awaiting the success of the paper industry in Quebec's hinterland.

But let us face and consider the great and imminent danger which threatens the destruction of these valuable forests. During the past summer several important mineral discoveries were made with strong indications of the development of a great mining region. Molybdenite and metallic bismuth have been discovered, apparently in large deposits; tin has been found and also silver. These with the important change recently made in the Quebec mining law, giving the prospector the chance he has wished for ever since Cobalt produced the first ounce of silver, is sufficient to cause a "rush" into Quebec's hinterland during

the next two or three years which will jeopardize the safety of those rich and extensive forests.

The prospector's recklessness in regard to fire is well known in any mining region, and where the sylvan growth or vegetation conceals the country rock fire is soon made to clear the surface to facilitate work. It is most distressing, therefore, to think that in an endeavor to locate mineral wealth, many millions of dollars will be destroyed in timber values. But we say surely there are means of preventing such reckless and wanton waste. Certainly there are, if immediate and proper action is taken, the danger can be eliminated. But whatever is done must be done quickly and not in the half-hearted manner usually assumed in such matters. The prospector must, before he goes into the field, be made to understand the enormity of such a crime as setting fire in a virgin forest. Seekers of wealth from all over the world, unaccustomed to the travel of woodsmen will be everywhere along rivers and lakes and they must be enlightened before they have destroyed every vestige of a forest. Their "miner's certificate," without which they cannot prospect, should contain some strict instructions of the responsibilities regarding fire.

Fire rangers in sufficient numbers and thoroughly competent not the usual class should be employed with police powers to keep perfect watch during the summer. Perhaps the only real good fire rangers who can be employed for such work are the Indians, who instead of drawing \$75 a month and sleeping much of the time, will be overjoyed at \$40 a month, and will cover more country before breakfast than the ordinary ranger will travel in a week. A fire ranger must not simply wander around in aimless fashion, but he must be ever on the lookout for parties going into the country giving them necessary warning and instructions regarding fire and shadowing them until they are under the surveillance of the next ranger.

If the Indians were employed to do this work the writer knows from several years' experience that they can be relied upon to do it properly. Give an Indian responsibility and good pay and he can be relied upon to carry out instructions to the minutest detail. His cunning methods and adaptability for such work together with his ability to read and write in his own language (thanks to the Missionary Fathers) makes him invaluable as a great natural resource which can be employed to save the forest wealth of the north. The Indian is also clever enough to see the importance of preserving his hunting lands and this would appeal to him more forcibly if during the summer he could make a living by his efforts.

The danger of forest destruction by the settlers in their land clearing is also one which must be seriously looked into, but the cure for this evil is so simple as to scarcely require mention.

Fire is the greatest enemy of the forest in this land and unless every possible precaution is taken to keep it away it seems absurd to go on with other policies of conservation.



THE DAVY FREIGHT RATE CASE.

In connection with the application of James Davy, of Thorold, to the Board of Railway Commissioners for Canada, for an order compelling the Niagara, St. Catharines and Toronto Railway to refund certain freight charges, alleged to have been unduly collected from him on shipments to Niagara Falls, N.Y., and for an order restoring the old rate of 2c. per hundred pounds, particulars of which were given in last issue, the Board directed that the first request be dismissed, but that the former rate of 2c. per 100 lbs. be restored from January 15th, the railway not having furnished sufficient evidence before the Commissioners to show that that rate was insufficient.

The Railway Company has now appealed to the Supreme Court of Canada from the above findings of the Commissioners on the ground that they have no jurisdiction. To this it may be replied that the company accepted the Commission as having jurisdiction when the rate was made 3c. but question it when the rate is put back to 2c.



BRITISH WOOD PULP ASSOCIATION.

The 13th annual meeting of the British Wood Pulp Association took place in London on December 2nd, A. E. Reed, vice-president, in the chair. The principal business attended to during the year had been the revision of the contract note. Among the chief provisions of this are the following:—

Packing and Weight.—The pulp to be packed in bales of declared uniform weight, or a specification to be given stating the weight and number of each bale. The price is per air-dry ton of 2,240 lbs. (1,015 kilos) gross per net. By air-dry weight is understood 90 parts of chemically dry pulp and 10 parts of water.

Quantity.—Should the buyer question the quantity of pulp invoiced, the dispute shall be determined by an agreed analyst. In the event of a dispute as to the appointment of an analyst the buyer shall submit to the seller three names from a list of analysts approved by the British and Scandinavian Pulp Associations and the Paper Makers' Association, one of whom must be selected.

The analyst shall test the pulp within ten days of the buyers claim being made, and either at the consumers mill or at any other suitable place in the United Kingdom. Unless at least half the parcel is available for sampling and testing, no test shall be made and the buyer's claim shall fail, and he shall pay any costs incurred by the seller by reason of the claim.

The samples must be drawn from accurately weighed intact bales as nearly as possible in the manner agreed upon by the British and Scandinavian Pulp Associations and the Paper Makers' Association. At least two per cent. of the parcel must be tested and in no case less than six bales. The analyst may, if he thinks fit, within three days test a further two per cent. of the parcel. The analyst's report as to the result of the test shall be final and the binding on the parties, and the costs shall follow the result; but should the excess of moisture or of pulp not exceed half per cent. the original invoice shall stand and the costs shall be paid by the buyer.

Arbitration.—All disputes arising under this contract (except as to the quantity of pulp invoiced) shall be settled by arbitration in the United Kingdom under the Arbitration Act, 1889. Each party shall appoint an arbitrator; and the arbitrators shall choose their umpire before proceeding on the reference. If either party fails to appoint his arbitrator within fourteen days after receipt of notice in writing requiring him to do so, the arbitrator appointed by the other party shall act for both parties, and his award shall bind both parties as if he had been appointed with their joint consent. If the dispute relates to the quality of the pulp delivered, the arbitrators and umpire must be experts in pulp or paper. At least half the parcel in dispute must be available for their examination, and should they find the pulp not to be reasonably equal to the sample sold upon, they may award that the pulp shall be rejected. This clause was finally altered in minor details as follows:

Add after the words, "At least half the parcel in dispute must be available for examination." Where the sale has been by sample, should the arbitrators find the pulp not to be reasonably equal to the sample sold upon, they may award that the pulp shall be rejected. Where the sale has been by brand or descrip-

tion, should the arbitrators find the pulp not to be reasonably equal to the brand or description sold upon, they may award such damages as in their opinion have been sustained by the buyers by reason of the inferiority of the pulp.

Capt. Edward Partington was re-elected President. At the banquet in the evening, Chairman Read referred to the great development in the pulp and paper trade, particularly in British Columbia and Newfoundland.



—J. R. Booth, pulp and paper manufacturer, Ottawa, has issued to his friends in the trade a very fine reproduction of Hamilton King's picture of the "Violet Girl" for use as an office decoration. We rather suspect that many of these pictures will disappear from the office and find their way into the homes of Mr. Booth's friends. Mr. Booth shows good taste in the selection of his souvenirs, as the reproduction of the "Coquette" and the scene from *Evangeline*, sent out last year and the year before, will show.

—The Improved Paper Machinery Co., Nashua, N.H., for which the Sherbrooke Machinery Co., Ltd., Sherbrooke, Que., is the sole licensee in Canada, has received, among others, the following highly valuable opinion from the Tonawanda Board and Paper Company:—"We have two of your 'Save-alls' running in our plant and we do not hesitate to say they are the best investment we ever made. We have had all kinds of save-alls but never had one to work with so little trouble and expense as your machine. When attached to a cylinder machine, they not only separate all the pulp from the tail water but if any of the collars or gates on the cylinder vats are carelessly left open they give you immediate warning by throwing out an unusual quantity of pulp. We would be pleased to recommend the apparatus to any of your customers that are interested."

MONTREAL PULP AND PAPER NEWS.

(Special to the Pulp and Paper Magazine).

Montreal, January 14th, 1910.

The Government of the Province of Quebec seems to be fully alive to the importance of pulp and forestry questions, and to have fully made up its mind to act in such a manner as to conserve for the Province all the advantages to be reaped from the situation. Hon. Mr. Taschereau, Minister of Public Works of the Province, took occasion, at a dinner held in Quebec recently, to reaffirm the position already announced by Premier Gouin. He mentioned September first as the date upon which the Government would, without fail, put into effect its new policy upon the pulp question. After that date, no pulp wood cut from the vast area of forests held by the Crown, could be exported in an unmanufactured state. These forests were estimated as of 200,000,000 acres in extent, being the greatest and finest pulp areas in the world. Nor did he anticipate retaliatory measures from the United States as a result of this policy, inasmuch as the United States required the forest products, and enactments making it more difficult for them to get them would be against the interests of the newspapers and other large and powerful organizations of the country.

Mr. Taschereau then referred to the introduction of a policy of forest preservation by the Government. Two experts had already been sent to Europe to study the methods of forest preservation which had been adopted there, and upon their return the information they had gained would be utilized. It was expected that schools of forestry would be established as a part of the system of education of the Province. It was also the intention of the Government to establish systems of dams at the head waters of many of the rivers, the object being to regulate the flow of water throughout the season.

This matter would be taken up at the coming session of the Legislature, and when the work was carried out would be of enormous value to the forests and to other interests of the Province.

Labrador Pulp and Paper Company.

Last month's issue of the "Pulp and Paper Magazine" contained an extended reference to the formation of the Labrador Pulp & Paper Co., and the disagreement which arose between some of the directors or promoters resulting in a suit being taken by Mr. C. E. W. Smith against Daniel Ford for forgery, by means of which forgery, Mr. Smith claimed he had been forced out of the company. The suit has since been heard and judgment has been given. Mr. Ford was honorably acquitted, the judge holding that there was not the least evidence to substantiate the charge. The company purposes building large pulp mills at Sandwich Bay and Hamilton Inlet, Newfoundland. They expect to employ fully 2,000 hands. Contracts are said to have been closed already for the sale of 50,000 tons of pulp to a European firm.

Canada's Attitude to United States.

A prominent pulp man, speaking of the attitude of the pulp and paper men of the United States, said that there was an effort on the part of these to minimize their dependence upon the forests of Canada for their supplies. Among many of them there is talk of substituting other wood, sugar cane and other material for spruce wood, all of which the pulp man considered utter nonsense and in the highest way impracticable. Not only would they have to put in new machinery to handle such substitutes as cane, but they would have to pay heavy freights on the raw material, both of which would be serious considerations even were it demonstrated that the quality of the paper would be as good and the

process of manufacture otherwise as economical. Under any circumstances, it would be easy, the speaker claimed, for Canada to hold the United States market. There was absolutely no escape from the conclusion that Canada held the key to the situation and that the Americans would have to come here for their material. It was easy for Canada, consequently, to insist upon it being manufactured into paper before being exported. In fact, he knew that a number of large interests on the other side already had men in the field here investigating conditions, and he had no doubt that these investigations would result in new mills being erected in Canada.

To such an extent were the pulp and paper interests of the United States dependent upon Canada, and more especially upon her spruce trees, that the quantity of spruce pulp wood imported was equal to about 45 per cent. of the total quantity of that material used in the United States, a year ago, while, of the total quantity of pulp used in the United States, spruce contributed about 65 per cent. That is, some 250 pulp mills of the United States used 3,346,106 cords of wood and made 2,118,947 tons of pulp, a year ago. Of the total amount, about 1,500,000 cords of domestic spruce were used and nearly 700,000 cords of Canadian spruce, the domestic supply being insufficient. In point of importance, hemlock came next to spruce, about 570,000 cords of that wood being used, all of which was of domestic origin. Some 300,000 cords of poplar were also used, very little of which was imported from Canada. These three woods contributed the raw material for about 90 per cent. of the total pulp output, pine, cottonwood and balsam supplying the bulk of the remainder. The constantly increasing price of pulpwood was causing anxiety, and although the mills were looking around for substitutes, none having practical value had been found as yet. More slabs and sawmill waste, however, were being utilized, 30 per cent. more be-

ing used a year ago than the previous year. The cost of the wood averaged \$8.38 per cord, or 17c. more than the previous year. Imported spruce was the most costly of any, being \$10.60 per cord, or \$2 more than domestic. Poplar averaged \$8.04 per cord and hemlock was the cheapest of all, at \$6.02.

"From these statements and figures, all of which are of an official nature," concluded the speaker, "I am convinced that Canada will be the absolute master of the situation within a very short time, and nothing but her own folly can prevent her reaping the advantage."

Mr. Hardisty, representing the Eddy Company, in Montreal, speaking to the "Pulp and Paper Magazine," expressed his satisfaction with the outlook for trade during the year now entered. The latter portion of the year just closed had brought with it a great improvement in trade, demand rolling up to such a volume that the mills were unable to keep pace with it. The year 1910 opens with orders on hand which could not be filled for some time to come. In fact, he had lately taken orders which he had told the purchasers could not be filled in less than than four to six weeks. From present appearances this condition of affairs would continue for some time to come, if, in fact, it did not become more acute. He considered that the outlook for trade was never brighter than it was now for the coming year. This referred more especially to the various grades of paper but applied equally to practically all the lines handled by the company.



—We regret to learn of the death of Dr. Ludwig Lund, managing director of Brunner, Mond & Company, Ltd., London, manufacturers of chemicals, etc. He perfected the manufacture of ammonia soda by the Solvay process and was without doubt one of the greatest among the modern chemists to apply the results of their researches to practical industrial uses.

CAMPBELL LUMBER AND PULP MILLS.

The Campbell Lumber Company, Weymouth Bridge, N.S., which operates lumber and pulp mills, has valuable water power and other facilities for making paper, etc., and may branch out considerably in the near future. They own timber limits to the extent of 25,000 acres, and could purchase 11,000 to 15,000 more at more favorable figures, though they have enough timber on their own properties to operate for several years to come, and an inexhaustible supply of pulp-wood. The lower pulp mill is operated entirely by water power, by which, under a 60-feet head, they generate nearly 3,000 horse-power plant. The upper mill, No. 1, which is now out of commission, is where the company intend installing an electric light plant. The No. 2 mill, which is now running, has a capacity of 60 wet tons every 24 hours. The available water power (2,000 horse-power mill No. 1) is at present under 40 ft. head, but could be easily increased to a larger horse-power by building a higher dam and increasing the head.

In reference to shipping facilities, the mills are so situated as to be able to make water as well as rail shipments all the year round.

About 100,000 bales of mechanical pulp are made during the year, but this could be increased perhaps to 200,000 bales or 20,000 tons if the contemplated electric plant were installed, as in the dry season, they could run one line by electricity and the other by water, therefore, practically speaking, running the full plant the year round in this way (that is, three months of the year, where they close down in the summer for this reason). They would also increase the dam capacity back at the lakes in order to give a steady continual flow in the dry months.

The machinery in mill No. 1 has practically all been removed with the exception of four pulp grinders, although they have four good water

wheels still there, which very little repair would put in good order. It is of interest to note that the company have a system in the pulp mill of utilizing all the waste from the sawmill, that is, converting the slabs and edgings, and grinding them up into pulp, thereby saving all the log. Of course, when the sawmill is now running they grind the whole log into pulp, but when the band-saw mill is in operation the heavy slabs and edgings seen in other plants going into the waste burner, are converted into marketable pulp by a special barking process in order to bark the wood, and from there it goes to the grinders and is converted into marketable pulp.



The Hinde & Dauch Paper Company of Canada, capital \$100,000, head office Toronto, has been incorporated to make and deal in all kinds of paper products. Among the incorporators are G. A. Grier and N. M. Yuile, of Montreal, and John Watt, Ralph King and H. H. Lloyd, of Toronto.

—Some recent decisions of the U.S. Interstate Commerce Commission are interesting in view of the frequency of such cases in this country. Holding that a common carrier charged with exacting an unreasonable rate cannot escape liability on the ground that the shipments could have been transported over a route carrying a lower rate, the Interstate Commerce Commission has ordered reparation of unreasonable charges upon eighteen carloads of newspaper shipped from Grand Mere, Que., to San Francisco, in the case of H. R. Willier, versus the Canadian Northern Quebec Railway Company. In another decision the commission holds that long-continued maintenance of a lower rate raises no presumption of a law that a newly-established higher rate is unreasonable. The case was that of the dealers, brokers and manufacturers of cotton seed oil at Memphis, Tenn., against railways transporting their product, resisting the proposed increase in the rate.

THE NEW FRENCH CUSTOMS TARIFF.

The following are the items affecting the pulp and paper trade affected by the new customs tariff which has just become law in France, and will become operative on April 1st next.

100 Kilos. = 2 cwt.; 25 Francs = £1; Kilo. (1,000 grammes) = nearly 2½ lbs.;
Metre. = nearly 40 inches.

Tariff No.	Description.	New Rates.		Old Rates (1892).	
		General Tariff.	Minimum Tariff.	General Tariff.	Minimum Tariff.
		per 100 kilos.	per 100 kilos.	per 100 kilos.	per 100 kilos.
461a	Paper or cardboard, other than that generally known as fancy sorts; machine-made, weighing 30 grammes or over per sq. metre	15	10	13	10
	Weighing 30 grammes or under per sq. metre	23	15		
	Cigarette paper, in rolls not exceeding 35 millimetres in width	30	20		
	In sheets or packets	37	20		
	Hand-made, imported in sheets not cut on the four sides, composed of many sheets, bleached or colored in the mass, or gummed or goffered in the pulp during the process of manufacture	23	15	15	12
	Sulphurised, or imitation sulphurised	30	20	25	20
	Fancy sorts, coated in white or color, marbled, goffered, enamelled, stamped, waxed, paraffined, or prepared with any oil, or essence, or for transfers; coated, colored, or marbled on the machine	45	30	30	30
	Covered wholly or partly with metal in sheets or powder	90	60	72	60
	Colored and cut in strips for shelf decoration	60	45		
471b	Paper hangings (other than "Lincrusta-Walton" and similar descriptions) and dados for same, flocked, metallised, stamped, varnished, or in imitation of leather	38	25	13	11
	Other sorts	26	17		
471c	Carbon papers, for use with the stylus or typewriter	90	60		
471d	Photographic paper, albumenised but not sensitised	125	100	125	100
	Sensitised with salts of silver or platinum, in sheets or rolls	300	200	250	200
	Carbon paper	60	50	60	50
	Sensitised with ferro-prussiate or cyanide proto-sulphate of iron	40	30	40	30
471e	Cardboard in sheets or slabs, weighing at least 350 grammes per square metre, per 100 kilos. gross weight	15	10	13	10
	Fancy, or vulcanized sorts	24	16		
471f	Marbled cardboard, strengthened or not, such as papier mâché, carton pierre, and decorative ornaments	14	9	12	9
471g	Cardboard, cut, shaped or fashioned, per 100 kilos. gross weight	24	16	10	10
	Fancy sorts, with designs in relief	33	22		
471h	Assembled for boxes	unchanged		45	36
471i	In tubes, called busettes			25	20
471j	Books of bindings, decorated with reliefs, paintings, fabrics, wood, common metal, etc.	105	70	90	70
471k	Lincrusta-Walton and similar goods	105	70		

465a	Objects in cardboard or pulp, moulded, compressed, or hardened, with or without relief, cardboard tubes and rolls for spinning, etc.	24	16	19	16
465b	Do. lacquered or varnished	unchanged		60	50
465c	Do. painted or incrustcd			240	200
467	Albums, plainly bound in boards, in black or color....	120	80	100	80
469	Engravings, half-tones, photogravures, lithographs, colored pictures, transfer pictures on paper in sheets, visiting cards, and designs of all sorts, including prayer books, calendars, commercial announcements, and the interior part of photographic albums, also illustrated post cards, in a single color, other than metal or hand-colored, weighing 350 grammes or less per square metre, unvarnished.	120	80		
	Do. Varnished	180	120	25	20
	Do. 351 to 700 grammes per square metre, unvarnished	75	50	to	to
	Varnished	105	70	300	225
	Do. Over 700 grammes per square metre, unvarnished.	30	20		
	Varnished	38	25		
	Do. In colors or in metal, weighing 350 grammes or less per square metre, unvarnished	300	200		
	Varnished	337.50	225		
	35 to 700 grammes per square metre, unvarnished.	180	120		
	Varnished	210	140		
	Do. Over 700 grammes per square metre, unvarnish	90	60		
	Unvarnished	112.50	75		
469b	Photographs of an artistic or documentary character, and without advertising matter of any sort..... [The title, name of artist or publisher, or that of the museum or collection whence the picture is derived, is not considered as advertising matter].			exempt	
	All other photographs are dutiable under No. 469a.				
469c	Photogravures and similar goods, in sheets or cut up into menus, etc., are dutiable under No. 469, according to description	165	110		
469d	Cinematograph films, in rolls or strips, printed.....				
	Do. Sensitized	300	200		
470	Printed matter of all kinds, not illustrated (other than those descriptions already specified above), in black or color	60	40	50	40
	Do. With illustrations, dutiable under No. 469, according to description				
475	Tubes of tarred paper	unchanged		1.25	1.00



—A bulletin just issued by the United States Department of Agriculture shows that the forests of that country last year contributed \$90,000,000 to its exports during the fiscal year of 1908 a twenty-fold increase since 1851. Imports of this class of material have grown even more rapidly. In 1851 they were \$1,000,000, which reached to \$100,000,000 in 1908. Wood pulp shows the greatest increase in import. From a value of \$5,000 in 1880, it has grown to more than \$7,000,000 in 1907. Exports of wood pulp

are comparatively small, and are decreasing.

—The Canadian Boomer and Boschert Press Company, Ltd., manufacturers of hydraulic, knuckle joint and power screw presses, have purchased the erecting shop of the Laurie Engine & Machine Company, Montreal, and have installed an equipment of machine tools necessary for the proper handling of their line of presses. This will greatly increase their facilities for handling all orders promptly and efficiently.

SECOND HAND ENGINES FOR SALE.

- 1 **Brown Engine** 20½ x 54. 62 R.P.M. 300 H.P.
16 ft. x 31½ in. fly-wheel, complete with Bulkley
Siphon Condenser and usual valves, fittings and
indicator piping.
- 1 **Brown Engine** 13 x 34. 90 R.P.M. 70 H.P.
complete with usual valves, fittings and indicator
piping.

Apply for Prices, etc.

- 1 **Brown Engine** 10½ x 30. 80 R.P.M. 47 H.P.
8 ft. x 4½ in. fly-wheel, complete with usual valves
fittings and indicator piping.

- 1 **Slide Valve Engine** 10 5-16 x 24. 84 R.P.M. 10
ft. x 16 in. fly-wheel, complete with usual valves
fittings and indicator piping.

MONTREAL
TORONTO

CANADA PAPER CO.
LIMITED

WINDSOR
MILLS, P.Q.

FOR SALE

- 1 WET MACHINE, 78" wide.
- 2 HYDRAULIC TRIPLEX PUMPS, 1¾" dia.
of plunger, 4" stroke, pressure 1,500 lbs.
- 1 HYDRAULIC TRIPLEX PUMP, 1½" dia.
of plunger, 6" stroke, pressure 1,500 lbs.
- 2 HYDRAULIC PRESSES, cylinder 20" dia.
daylight 4' 3", lift 32", size of platen 30" x
40", pressure 1,500 lbs.
- 1 KNUCKLE JOINTED BALING PRESS,
daylight 5'-8", lift 2'-1", platen 24" x 36".
- 1 HYDRAULIC ACCUMULATOR, 9" ram
by 10' long, pressure 1,500 lbs.

All in good order. Apply

Jonquiere Pulp Company

JONQUIERE, QUE.

WANTED

Position as superintendent or builder of
Sulphite Pulp or Wood Pulp Paper Mill. Wide
Experience abroad. (U.S., Scandinavia, Russia,
etc. as well as in this country. Highest testi-
monial for economical construction. Consump-
tion of sulphur in last mill built 8%. (As against
12-18%.) Brown Mech. Pulp and Paper (= imitat
'Kraft') a specialty. Correspondence solicit-
ed. Address, R.S.T. c/o this paper

WANTED

Correspondence with parties interested in
starting a mill for "natural" brown steamed
wood-pulp and paper. The advertiser is a
specialist in this line from Scandinavia.
Highest testimonials. Address C. E. B., c/o
Pulp & Paper Magazine of Canada

FOR SALE.

Two Daniel Cutters, arranged to run
tandem. These cutters were doing good
work before taken out.

Box 12, "Pulp and Paper Magazine."

FOR SALE.

Two Whyte oscillating paper machine
screens. Capacity, three tons each per
day. Good as new. Box 11, "Pulp and
Paper Magazine."

POSITION WANTED by mechanical
engineer and chemist. Up-to-date on
direct and indirect cooked sulphite, both
strong and easy bleaching, construction,
maintenance and bleaching. Address,
"Efficient," "Pulp and Paper Magazine."

SCANDINAVIAN, experienced on soda
cellulose and sulphate of soda cellulose,
"Kraft Pulp," wants position with re-
liable firm; wide experience in the build-
ing line. Address, "Kraft Pulp," "Pulp
and Paper Magazine."

The Smart-Turner Machine Com-
pany, Ltd., Hamilton, Ont., who as our
readers know, already have patterns for
single and double acting triplex power
pumps, power vacuum pumps and cen-
trifugal pumps, have now determined
to complete this line of patterns by add-
ing triplex stuff pumps and triplex
vacuum pumps. They will be glad to
send full particulars on application.

EFFECT OF STORING ON PAPER.

It depends a good deal upon the quality of the paper whether it will improve upon being stored for some time or not. In such papers as drawing storage does improve the quality in many ways. Upon this class of paper the finish or tooth of the paper is much improved owing most likely to the paper taking up moisture, the fibres thus becoming fixed for all time. It is a well known fact that papers dried by atmospheric conditions are much better and stronger than hard dried or machine dried papers. When drying on the paper machine the fibres are under tension and are not in their natural state, therefore they do not represent the real article. There is a limit to the time which papers should be kept stored, and when kept too long they are apt to go back in either color, finish or strength. Such papers would be those made mostly from bleached wood fibres. Those made from mechanical wood should never be stored, as they deteriorate very rapidly. The writer has known of certain papers that were refused by the buyer when made on the machine and shipped immediately, but after being in storage for six months were accepted as being good in every quality. Tub sized papers improve in quality upon storing, and this is owing to the fact that they are allowed to come under the influence of the atmosphere, and the coating of these papers, which is made from gelatine, assumes its natural form. Take a sheet of gelatine and allow it to lie in the sun for a time and it becomes very brittle and cracks very easily; take a similar sheet and lay it in a cool place, and it is possible to bend it almost double before cracking it. This merely goes to prove that the surface coating of the paper is affected in a like manner. Paper kept in storage will gain in weight to a certain extent, and its expansion will be corrected, and when such paper is used upon the printing press it will be less liable to cockle or wrinkle. The finish of the paper should always be borne in

mind when the question of storage of papers comes up, as the effect of such storage depends a good deal upon the raw material from which the paper has been made. While long storing will help papers made from all rag with no chemicals present, the same would not be true of papers made from the same material, but hard sized, as the effect of the size upon the paper would most likely cause it to lose in strength. The same applies to papers in which starch has been used. The purpose for which the paper is intended should also be considered. When a highly finished paper or a paper possessing a very smooth surface is stored it will not retain this surface, for the movement of the fibres under the atmospheric conditions will disturb this surface and make it useless for the purpose for which it was intended. The place of storage also must receive attention, and such a place should be where there is a natural atmosphere in summer, and as near as possible to it in winter. It should be moderately dry, and the temperature the room should be maintained uniformly.

It is very questionable as to whether there is any benefit obtained by heating the bleaching liquor or the material which is to be bleached, says the *World's Paper Trade Review*. When the temperature of bleach is raised it simply accomplishes its work more rapidly, the chlorine is liberated more quickly, so more rapid oxidation is secured. But against this we have the fact that it takes about 20 per cent. more bleach to get the same result. Should the temperature rise above 100 degrees the fibre will be attacked and will be injured in strength as well as in color, besides making a very brittle and unsatisfactory paper when used in conjunction with other fibres. Where dirty rags are used and which are very difficult to bleach white there might be some economy in heating the bleaching liquor, for it would save time as well as power in accomplishing the bleaching of the rags quicker. The cost of heating the

bleach to a point which will effect a more rapid result is hardly worth noticing. But in cases where high grade rags are used no chances should be taken, as there is too great a chance of ruining them by over-heating. The steam cocks in the washer should be carefully guarded for leakages when the stuff is being heated, as they would in a very short time cause it to become over-heated and the damage would be very great.



SOME PAPER STATISTICS.

Germany manufactures annually 425,000 tons of paper; England 260,000 tons; France 190,000 tons; Austria 155,000 tons; and Italy 120,000 tons. But the United States makes and uses more paper than all Europe, the annual production amounting to 1,300,000 tons. A French journal mentions the following novel uses of paper in America. Roofs of paper and compressed wood pulp have proved successful. A Chicago firm makes paper garments which are so light, flexible and convenient that they are largely used in hospitals. The paper is made of the bark of the paper mulberry tree, and is tub sized and finely scraped. Several sheets are superposed and sewn together. The garments have narrow woolen bindings, buttons, button-holes and other fastenings. Paper cigars are made by steeping paper pulp for ten days in a decoction of cigar clippings, passing it between cylinders and rolling the sheets into the form of a cigar.

Paper bottles and grain bags are made in Philadelphia. A recent invention is the paper horseshoe, which according to the inventor, is more durable, as well as lighter than the iron shoe, and eliminates all danger to the hoof, as it is attached, not by nails, but by cement. Two German engineers have invented a sort of reinforced paper, composed of paper pulp, canvas, linen and raw silk, reinforced with steel wire. The new material is light, waterproof, fireproof and

suitable for the construction of vessels, including warships, motor cars and other vehicles, for railways, street pavements and many other uses.



CANADIAN PAPER IN AUSTRALIA.

The rapid growth in the importation of paper from Canada into Australia, which is now three times what it was two years ago, is gratifying. This trade has been thoroughly pushed and the results are the reward of the work done. As yet few of the Canadian mills have participated in the trade. The total importations of printing paper were £641,944; of which £206,734 came from the United Kingdom, £127,309 from the United States, and £189,791 from Canada. Canada, therefore, is now second only to the United Kingdom. Undoubtedly she stands first, as some of the paper credited to the United Kingdom originated elsewhere. It will be seen, however, that there is room for a considerable increase in the amount of Canadian paper supplied to this market. In mill boards, leather boards and other paper boards, Canadian manufacturers do not appear to be anxious to do business, though of the total importations of £36,900, £3,398 is credited to Canada, Germany and the United States supplying the larger portion. In straw boards, Canada appears to do nothing. In writing paper there is an importation of £92,000, Germany, Sweden, Norway and Belgium doing the trade. Canada has not touched writing and typewriting paper. Of cardboards and pasteboards, out of the £100,000 supplied here, Canada is credited with having sent £6.



The West Coast Pulp & Lumber Company, a United States syndicate with a capital of \$4,500,000 has bought 505 square miles of timber limits near Robeson River, Newfoundland.

LARGE OR SMALL MACHINES.

In comparing the relative advantages of large, quick running paper machines, and of smaller machines running more slowly, a correspondent remarks that the owner of the latter can make profit out of their operation if he understands how to run his factory, the same knowledge, diligence and caution being required as with large and modern machines. For a large production good condition and uniform working of the hollanders are needed, particular attention being required as to the duration of the grinding and the uniform discharge of the pulp into the vats. A slight excess in aluminum, or a small change in the sizing acts injuriously with respect to the course of the paper on the machine. The ground wood, which is the largest component in the pulp used on quick running machines, must be of a specially uniform character, made from suitable wood, free from splinters and fresh. The cellulose must likewise not be splintery, but well washed, strong in the fibre and somewhat unctuous in nature. No deposits of slime or froth should be permitted in the stirring vats or on the machine, the paper in such cases not only varying in weight but tearing on the wire. The knot traps must always be kept clean and open in such a way that they need not oscillate too violently, the latter movement causing the scattering of the pulp and the formation of lumps.

Particularly in the case of quick running machines the closest attention must be paid to the formation of the paper on the wire. The fact of the wire part being in an ascending slope would lead to cloudiness in the paper, due to the accumulation of pulp. The level course facilitates the flow of pulp which is in a uniform condition.

The wire register rolls must be absolutely round, as otherwise bad paper and a large proportion of seconds would result. The number of the suction appliances must correspond with the pro-

duction, it being a mistake to suppose that the web is sufficiently drained after leaving the last but one of these appliances. The paper should be as free as possible from water before entering the couch press. It is, moreover, self evident that the position of all the rolls and other portions of the wire part must be perfectly exact. Quick running work requires, after good couching on the wet presses, the action of pervious felts and of press rolls of width uniform with that of the paper web. Good presses are indispensable for the production of paper free from defects, leading to economy, moreover, in web and dry felts.

On the dry part the last cylinders should not (as they frequently are) be heated as much as the middle ones. The paper reaching the last cylinders being less in need of the action of the steam is likely to be thus injuriously affected.

It is, however, remarked that manufacture with smaller and slower machines is much easier and better than with those which are quick running. Moreover, they permit better more regular operation of the hollanders. Cleanliness and exactness of working can be more thoroughly watched, while the quantities of froth and dirt gathered are less than with larger machines, and are more easily and quickly removed.

Another advantage of smaller and slower paper machines is that the steam pressure does not require to be so high, while a further point is that they require less attention. Changes of stuff are not likely to lead to such injurious results as might result in the case of larger machines.



The Beaver Manufacturing Company, at Beaver Mills, N.Y. and Buffalo, is anxious to start a branch factory for the manufacture of wood fibre in Ottawa, in order to avoid customs duties on its goods from the United States. It wants to secure a building near the Chaudiere, in order to be near the Booth mills, from which it will get its raw material.

PULP AND PAPER MARKETS.

Toronto, January 15, 1910.

Paper men have been particularly busy in meeting the demand. This refers to both print and book papers. Even towards the end of last month when in most years there is a very perceptible lull in the taking of orders owing to the holiday season, there was this season only a slight slackening off and this did not last long. Prospects for the year are universally conceded to be seldom or never better. It is true that new machines have been or are about to be added to several of the mills, and some believe there will be closer competition when they are put into operation, but the general opinion is that there will be sufficient demand to take care of all supplies without difficulty. One branch of the business which is not so satisfactorily placed is in wrappings, for which the demand has been rather slack. Probably the growing liking for Kraft has had something to do with this. Quotations for other lines are very firm, and there has been little or no cutting.

With regard to pulp, there cannot be said to be any particular falling off in demand, though trade has been deranged by the material increase in railway freight rates on this and other paper stock. The Ottawa mills were hampered for a while owing to the blocking of streams by logs standing as a result of the low water the season before last. This is a matter which in future will right itself owing to the extensive dam construction which is now practically completed. The actual price for ground wood holds around \$25 or \$26 delivered, or say \$19 to \$21 at the mill, although the prices asked are generally more or less considerably above this. Sulphite is \$1.85 to \$2, though some grades have been quoted as low as \$1.65. Soda pulp is \$2.10, or say \$55, all charges paid, delivered. Business in pulp and paper stock was brisk until disorganized by the recent arbitrary raising of freight rates, which in some

cases makes a difference of 11c. per hundred, or no less than 75 per cent. We have heard of several fair-sized orders having to be turned down on this account. Importations from England to the Western States have practically ceased, temporarily at least, owing to the great rise in cost of freight, on both ocean and railways.

* * *

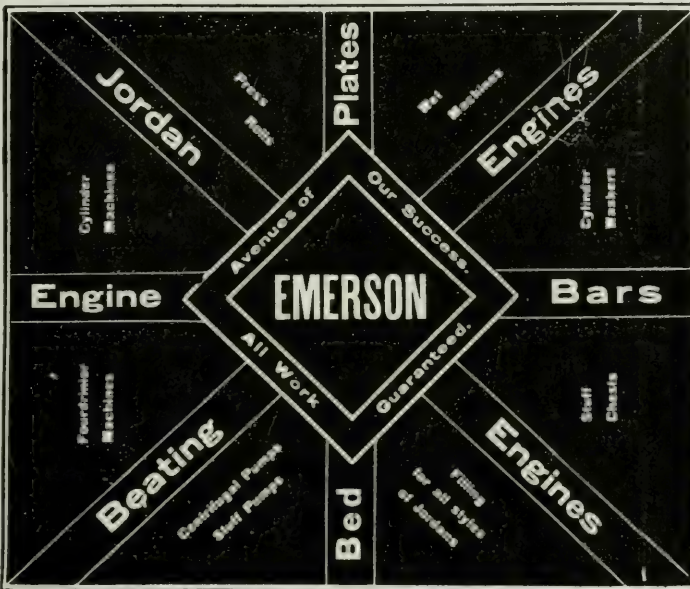
Montreal, January 14, 1910.

Some of the pulp mills have lately been making contracts for shipments covering the present year. They report a good demand from all quarters, particularly from the New England States. It would seem that there is some shortage of water in the region mentioned, although the situation has improved as compared with the low point of a few months ago. Many seem to think that the readiness of the United States buyers is due to some extent to the fear that the tariff, after the first of March, will not be so favorable as at present. Canadians naturally are hoping that these fears are groundless. There is some justification for their hopes, according to statements made by public men, from time to time. At the same time, pulp mills in Canada will be quite relieved to hear that Canada has not been made the subject of retaliatory measures by her big neighbor.

One manufacturer of pulp, who has recently put through a number of contracts for the coming year, states that a fair average price for ground wood pulp, this year, is \$19 to \$20 per ton at the mills. Asked how this figure compared with the price one year ago, he said that a year ago the price was in the vicinity of \$17 to \$18 per ton, so that the mills were getting about \$2 per ton more than a year ago. Speaking of the outlook for the coming year, he said that it was exceedingly bright. He had little fear of prices showing any decline from the figures mentioned and thought that

(Continued on page 50).

EMERSON MFG. CO.



LAWRENCE, = = = MASS.

THE UNITED WIRE WORKS LTD.

Edinburgh, Glasgow & Newcastle on Tyne.

FOURDRINIER WIRES CYLINDER WIRES

Wire Cloth all meshes, in Brass, Copper Bronze & Steel.

SOLE AGENTS FOR CANADA

ARTHUR P. TIPPET & CO. 8 Place Royale, MONTREAL.

Wires held in stock at Montreal for prompt delivery.

(Continued from page 28).
the outlook was rather for higher than lower levels, although the probabilities were that there would not be much alteration at all.



BRITISH MARKETS.

According to the World's Paper Trade Review, the mechanical pulp market is unusually quiet, with few enquiries for winter stock. There is, however, an improved demand for paper owing to the general elections. Market for chemical pulp is improved and prices are firm. The market for chemicals is quiet, ammonia (58 per cent.) is £4 5s. for prompt and £3 15s. for forward delivery; bleaching powder is £4 2s. 6d to £4 7s. 6d; caustic soda (77 per cent.) £11; recovered sulphur £5 per ton. For home and foreign rags the demand is improving.



NORWEGIAN MARKETS.

While cellulose remains unchanged, mechanical is considerably firmer than a little while ago at Kr. 38.00 = \$10.13, at which price quite a number of sales have been made both for prompt and next year's delivery. The paper trade is still unsatisfactory from the makers' point of view, at least so far as newspaper is concerned. Prices are still very low, but this is not more than was to be expected when one bears in mind the enormous increase of late years in the aggregate producing capacity of the mills of the world. The great output of newspaper also necessitates a big consumption of mechanical pulp, which largely accounts for the firmness of this market. The ranks of the strikers are shrinking day by day. The employers slowly but surely drive the workmen's associations back.



RAG AND PAPER STOCK MARKET.

Montreal, January 14th, 1910.

Dealers in rag and paper stock do not find trade very active, just at present, although they report that it is away ahead of this time last year. The paper trade is generally occupied about this time of year taking stock and balancing up for the year which is past, as well as making

preparations for the year to come, so that rag and paper stock dealers experience the effects to some extent. However, they report that the indications for the coming year are that most lines of waste material will be scarce, particularly as supplies, which had been accumulating for some time, are being reduced gradually and, judging from the present outlook, demand is likely to exceed supplies for some time to come. The situation is consequently firm, although there has been no advance of late nor, for that matter, would one be expected around the end of the year. So far as can be seen here, paper mills both here and in the United States are operating freely, although there has been more or less shortage of water in New York State, and this has had the effect of curtailing the output somewhat.

Prices of mill stock are holding steady all along the line, but it is expected that this will be changed before long and that there will be a slight advance in a number of grades of material. Prices are as follows:—

Shirt Cuttings—	Per 100 lbs.
White	\$4 50 to \$5 50
Unbleached Cottons ..	4 25 to 4 75
Light Print Cuttings..	3 00 to 3 50
Shoe Rag Cuttings—	
Bleached	4 00 to 4 50
Mixed white	3 00 to 3 50
Light print	2 75 to 3 00
Overall Cuttings	
Blue	3 25 to 3 50
Brown	2 00 to 2 50
Paper Shavings—	
Hard white	2 00 to 2 25
Soft No. 1 white	1 50 to 1 75
Soft No. 2 white	1 25 to 1 30
Mixed shavings	0 55 to 0 60
Ledger stock	1 00 to 1 25
Printed book	0 90 to 1 00
Common waste	0 25 to 0 45
Roofing Stock—	
No. 1 satinette	0 75 to 0 80
No. 2 satinettes	0 45 to 0 50
Sundries—	
Old bagging	0 60 to 0 65
Manilla rope	2 00 to 2 25
Mixed cotton rags	1 00 to 1 25

THE PULP AND PAPER MAGAZINE OF CANADA

Vol. 8.—No. 2. TORONTO, FEBRUARY, 1910.

\$1. A YEAR
(SINGLE COPY 10c)

Pulp and Paper Magazine

A monthly magazine devoted to the interests of Canadian pulp and paper manufacturers and the paper trade.

Subscriptions: Canada and British Empire, \$1.00 per year. United States and Foreign, on account of postage \$1.50 per year.

The Pulp and Paper Magazine is published on the second Tuesday of each month. Changes of advertisements should be in the publishers' hands not later than the 1st of the month, and, where proofs are required four days earlier. Cuts should be sent by mail, not by express.

BIGGAR-WILSON, Ltd.

PUBLISHERS.

**Offices, Confederation Life Building,
Toronto, Canada.**

CONSERVATION OF NATURAL RESOURCES.

The Pulp and Paper Magazine takes a more than ordinary interest in the plans now being laid so broadly for the conservation of natural resources because it can take measurable credit for being the father of the particular movement which made such forward strides in Ottawa last month. As already stated in our columns, we suggested in a letter to ex-President Roosevelt that that broad-minded statesman should formulate some plan whereby the natural resources of both Canada and the United States might be economized for the mutual benefit of both nations. Encouraging replies were received from Mr. Roosevelt and from

Gifford Pinchot, then Chief Forester of the United States, who shortly afterwards visited Canada to talk over the situation with the powers that be. In a little while came the announcement that the President was calling a conference in Washington to investigate the best means for the carrying out of the purpose in view. The direct result of this, as is well known, was the appointment of the important Commission for the Conservation of Natural Resources, which sat in Ottawa last month.

If anything is to be judged from inaugural signs, it is safe to declare that few gatherings will in the future possess more historical importance than this. Ex-President Roosevelt was, indeed, a benefactor to the whole North American continent when he called his famous International Committee. Canada is likely to reap more benefit in proportion from that great idea than his own country, because, while United States resources have been largely mortgaged already, inroads on those of Canada have only barely started. Surely, with the experience of the Republic to teach us, Canadians will be doubly guilty of treachery to posterity if they do not take better care of the assets placed within their keeping than their neighbors unfortunately have done.

The first convention was one chiefly for organization purposes; and for the purpose of apportioning, each to its own expert committee, the details of each line of endeavor. That these are wide enough goes without saying. The field of enquiry for action is almost stupendous in its variety. Public health, forests, mines, water powers, soil fertility, are only part of the natural resources which need vigilant attention. It is gratifying to note that Hon. Clifford Sifton, the chairman of the Commission, has announced his absolute retirement from all political work during the period of his labors. Opinions may vary as to Mr. Sifton as a politician, but nobody doubts his wonderful capacity as an organizer. Nor does anybody doubt the extraordinary scope presented by the necessary work of the Commission for organizing ability of a very high order. His singularly able opening speech on the purposes of the Commission, and on the qualifications needed in those who would have the task of suggesting means for conserving such assets as forests, water powers, fertility of the soil and so forth, drew forth encomiums from all sources.

Amidst such wealth of material it is difficult to select for special mention many contributions to the discussion at Ottawa. We may, however, give a summary of Dr. B. E. Fernow's masterly paper on what scientific forestry has done for the timber wealth of other countries. He emphasized the six essential points of successful methods as follows:

Wherever forestry, that is managing timberlands as a crop, has been practised for long enough time, its results have shown themselves in increased per acre production and in greatly increased revenues.

Every principle involved in the successful systems inaugurated in other countries can with proper judgment be applied somewhere in Canada even now.

To secure such application of improved methods in handling timberlands, first of all a change of attitude towards the forest on the part of governments and people is necessary, namely, from considering it as a mine to be exploited, to conceiving it as a crop which can be perpetuated by management.

Such change of attitude may be secured by more definite and reliable information regarding our timber supplies and the need of desirability of their conservative use; information which it should be the first business of this Commission to collate.

The timber license systems are inimical to the radical reform which is believed necessary in order to secure such conservative use. Hence, comprehensive plans for an equitable adjustment of the rights of licensees, which will, however, restore the full control of the properties to the provincial governments, need to be formulated.

This can best be done by royal commissions as special forestry committees for each province unhampered by political considerations, leading eventually to the creation of special bureaux for the organization of a forest service.



UNITED STATES TARIFF PREPARATIONS.

It will be remembered that according to the terms of the new Payne Aldrich Tariff Act of the United States, any country or province thereof which was considered by the President to be un-

duly discriminating against the United States in its trade relations should by March 31st next pay an additional duty of 25 per cent. ad valorem. All sorts of interpretations have been made of both the words "unduly" and "discriminate," but the anxiety (if any existed) on the part of some countries which wanted to know where they were at has been ended in a few instances at least. President Taft has now named some of the countries that do not discriminate in any way against the United States. These countries are Great Britain, Italy, Russia, Spain, Turkey, and Switzerland, and they can thus send their products to the United States at the minimum rates of duty. Germany ships large quantities of pulp and paper to the United States and Scandinavia a large quantity of pulp, so there is anxiety in both those countries as well as in the United States itself to know whether and how this matter of extra duty can be amicably arranged before the end of next month. In the case of Sweden, however, it has already been decided by United States customs appraisers that unbleached chemical wood pulp is not liable to the imposition of an additional countervailing duty on account of the small export tax which is charged by that country for the upkeep of the forests.

Canada's position at this stage of the controversy is of particular interest. Some believe that President Taft's announcement that Great Britain is to be on the "minimum" list, is meant to include Canada and the colonies. It is to be hoped that this interpretation is the correct one, though it should be pointed out that in the case of one of the other countries mentioned favorably,

viz., Italy, her colonies and possessions are also specifically mentioned. There is no very strong reason, however, to believe that the failure of the President up to this time to include Canada among the privileged countries means that it will not be so included before the time of grace shall have expired. The trade interests involved, particularly those of the United States itself, are so vast, and the harm which would accrue to the trade of that country in the event of a tariff war with Canada are so enormous that very few people in either country, really believe that things will be allowed to reach such a pass. Indeed, Hon. Mr. Mann has a bill before Congress asking for a postponement of extra duties in the case of Canada. Some in the United States believe or affect to believe that the recent ratification of a trade treaty with France, calls for retaliation by the United States. The point does not appear to be well taken. Canada has a surtax clause on its statute book. According to the above argument we should put it into force immediately against the United States, because it grants certain important concessions to Cuba. That sort of agreement is not the way to advance the beneficial relationships of two great self-respecting neighboring nations, the great preponderance of opinion in both of which is to sink minor differences and to work for the best interests of each. All that we as a self-respecting people can do is to make what progress we can in our plans for conserving the national resources. If, when that has been done, our policy shall be found to conflict with American interests, no doubt the United States Government will find a way of conferring with our own Government on the subject, and we

believe both parties will be found to be perfectly ready to meet the difficulties in an amicable spirit.



MR. NORRIS'S FIGURING.

At a meeting of associated Ohio dailies, comprising 124 daily newspapers of Ohio, held in Columbus on the 2nd inst., a statement "upon the price which publishers should pay for print paper" was made by John Norris, Chairman of the Committee on Paper of the American Newspaper Publishers' Association.

Mr. Norris said if free competition and normal conditions should prevail in the paper trade, news print should be delivered in press-rooms at \$35 a ton, or \$1.75 per one hundred pounds. He charged that newspapers were taxed \$8 a ton above that figure on one million tons, or \$8,000,000 per annum, because of the ignorance and lax methods of print paper makers, and that the same causes were imposing a penalty of \$50,000,000 per annum upon the users of all kinds of paper, including book and writing, and thereby taxing knowledge.

More than \$2,000,000 per annum was paid by newspaper publishers for atmospheric moisture in print paper, he declared.

Mr. Norris pointed out the practicability of converting pulps into paper at New York harbor at a cost of \$35 a ton, delivered in New York press-rooms, and said the tangle with Canada as to pulp-wood supply was an embarrassing development in that direction.

Mr. Norris seemingly is a modern "Admirable Crichton." He is full of knowledge on all sorts of varied matters and can teach practical manufacturers how to carry on their business as well.

At the same time there is no doubt he has a good deal of truth on his side when he takes the manufacturers and their employees to task for lack of skill and of technical education. The art of paper making is too often carried on by methods uninfluenced by any system of industrial education designed to meet its special needs.

Mr. Norris further is of opinion that the grinding of wood into pulp should be concentrated where cheap wood and ample water power and good water routes to market can be formed in combination; that is to say, Canada; while—he goes on—locations in the United States, like New York Harbor, possessing tidewater facilities offer inducements for the conversion of pulps into paper. He recognizes Canada's advantages for pulp making, but should go a step further and see that Canada is the future paper-manufacturing country also.

Mr. Norris seems to look for absolute uniformity in paper. Doubtless this is a quality, in color, in weight, in thickness and so forth, to be particularly aimed for as an ideal. But it may be pointed out that in scarcely any branch of manufacture is it absolutely attained. Silk, cotton, and woollen goods, all vary, fractionally at any rate; and this applies both to machine and to hand-made goods. Paper is the same.



HUDSON'S BAY RAILWAY.

An important statement was made in the House the other day by Hon. Mr. Graham, Minister of Railways. It was to the effect that the Dominion Government is committed to the building a railroad to Hudson's Bay, and that it intends to proceed with the work almost at once. There seems still to be

some difference of opinion as to whether Nelson or Churchill Harbour would make the better terminus, the engineer, Mr. Armstrong's opinion being in favor of the former. In order to make more sure, however, the government will send an expedition into both harbours so as to make an investigation of the approaches and channels. This will not postpone the beginning of work on the enterprise in any way however. The engineer's estimate of cost is \$16,426,340 for a railway with a grade of 4-10 of one per cent., but this figure, of course, must for the present be regarded as merely approximate. Because the government expects to begin construction in the summer, this does not mean that it has been decided yet as to whether it will be built and operated by government or by a private company. Any work which may have been already done could be handed over to a private company on reasonable terms.

The importance of the work, not only to Ontario, but to Western grain shippers and the Dominion as a whole cannot be exaggerated. The cost of shipping grain from the Western provinces will be cut down about 5c. per bushel. Actual cost to the country will be eliminated largely or entirely by the opening up of Crown lands rich in pulp-wood and minerals, the value of which without transportation is little or nothing. Fisheries also will bring in large additional sources of wealth.



DISINFECTION OF PAPER.

Dr. Bartsch, of the Prussian Government Testing Institute, has recently been testing the effects of hot air disinfection on the qualities of paper.

According to some experiments made by Dr. Ballner, dry hot air at a temperature of about 210° F. has only a very poor disinfecting efficiency, whilst moist air at the same temperature is far more rapidly fatal to disease germs. This conclusion may be accepted as certainly correct, but Dr. Ballner's further sugges-

tion that disinfection by moist hot air has no injurious influence on the wearing qualities of the paper requires some modification in the light of Dr. Bartsch's experiments. The problem of obtaining a uniformly moist atmosphere at such a high temperature is not quite simple. The directions for the disinfection process prescribe an atmosphere containing moisture to the extent of 60 per cent. of its full saturation capacity.

Dr. Bartsch has obtained these conditions in an ingenious manner by taking advantage of the fact that an enclosed atmosphere over a solution of calcium chloride will contain less moisture the more concentrated the solution. Moreover the percentage saturation of the atmosphere will remain constant at any temperature, so that an atmosphere of 60 per cent. humidity in the cold will still contain 60 per cent. humidity when hot, provided the whole system, calcium chloride solution and air be uniformly heated in a closed space. A suitable solution for maintaining this degree of humidity may be prepared by dissolving 57 parts of calcium chloride in 100 parts of water.

Dr. Bartsch has tested the strength and mechanical properties of paper after heating both in dry air and moist air for three hours. The paper, after heating in dry air, was very brittle, and it only regained its normal properties after exposure for some days to the ordinary atmospheric conditions. When the two series of strips were then tested comparatively it was found that the paper heated in moist air had suffered to exactly the same extent as those which had been exposed to dry heat. The papers had lost considerably in elasticity (breaking-stretch) and resistance to folding, but the tensile strength had not altered. The impression that paper loses more strength by dry heating than moist heating has apparently arisen from the fact that the dried paper had not been allowed sufficient time to regain its normal condition.

PULP AND PAPER NEWS

The Canada Paper Company's new writing paper plant at Windsor Mills is about completed.

* * *

The E. B. Eddy Company is said to contemplate building a new branch factory, probably in the West.

* * *

The National Press, Toronto, is being wound up. It published the "Canadian Field," "Method," and other papers.

* * *

Ritchie & Ramsay, Limited, manufacturers of coated paper, have moved their offices in Toronto to the Ogilvie Building.

* * *

It is rumoured that the Brown's mills of Berlin, N.H., are to build a Kraft pulp mill at La Tuque to supply their Berlin mill.

* * *

The Thompson-Norris Company have started the manufacture of corrugated paper at their new factory in Niagara Falls, Ont.

* * *

Last year the Province of New Brunswick exported no less than \$116,932 worth of pulp wood, and \$674,538 of wood pulp.

* * *

George E. Challes, of Toronto, of the Riordon Paper Company, paid a visit to the Kalamazoo, Mich., mills, last month.

* * *

E. Crabtree & Son, who own the wrapping and sheathing paper mills at St. Paul d'Industrie, Que., will open an office in Toronto.

* * *

The St. Croix Lumber Co., St. Croix, N.S., has installed a pulp making plant at a cost of over \$12,000, and with a capacity of 16 tons per day.

* * *

The Don Valley Paper Company, Toronto, which now makes a few lines of paper bags, will go into this branch shortly on an extended scale.

Esdale Press, Ltd., Ottawa, have been incorporated with a capital of \$60,000 to carry on a publishing and stationers' business, make paper boxes, etc.

* * *

J. R. Coburn, of Carthage, N.Y., has been appointed pulp-wood selling agent in New York State by the Eastern Townships Lumber Company, Sherbrooke.

* * *

The Sprague Lumber Company, Ltd., has been empowered to take over the lumber business in Winnipeg of Daniel Emes Sprague, and to manufacture lumber and pulp, etc.

* * *

F. H. Russell, formerly sales manager of the Laurentide Paper Company, has been appointed general manager of the Wright Bros. flying machine factory at Dayton, Ohio. * * *

Thorold, Ont., ratepayers have carried a by-law fixing the assessment of the Montrose Paper Mills at \$20,000 for ten years. The mill is now running at double its former capacity.

* * *

It is stated that the Hinde & Dauch Paper Company, recently incorporated in Toronto, and whose head offices are in Sandusky, O., will erect a large box board factory in Toronto.

* * *

George Woodcock, general superintendent, and John Acer, sales manager of the Laurentide Pulp and Paper Company, Grand Mere, Que., paid a visit to Toronto last month.

* * *

W. J. Ball, of the Spanish River Pulp and Paper Company, was severely injured in the terrible wreck on the C.P.R. near Webbwood, and only escaped with his life after terrible exertions.

* * *

The Montrose Paper Mills, Merriton, Ont., are having their plant overhauled. New dryer, rotaries, water wheels, and a new filter, etc., are being installed. They will turn out linen finish writings.

The Jonquiere Paper Company have had their large new machine in operation for some time, making news and manilla.

* * *

The Cutler Bay Lumber Company, Cutler, Ont., capital \$300,000, will manufacture timber and pulp-wood. C. McCrea, G. J. Valin, and A. J. Manley, of Sudbury, are charter members of the new company.

* * *

J. E. Stewart, Andover, N.B., proposes to erect a \$1,000,000 pulp and paper mill on the St. John River. He combats the idea that the building of the Tobique dam would injure the fishing interests of the St. John River.

* * *

The Kent Cooper Company, Collingwood, Ont., has been incorporated to deal in lumber and pulp-wood. Frank Kent, of Meaford; K. N. Cooper and D. G. Gibson, of Collingwood, and W. B. Seaman, of Toronto, are members.

* * *

Port Arthur Ont., has passed a by-law giving a free 50-acre site and exemption from taxes to the Canadian Linen and Paper Company, which proposes to erect a \$50,000 plant and spend \$250,000 within the next five years and employ 150 men.

* * *

The Laurentide Paper Company is now offering its authorized issue of \$1,200,000 worth of first mortgage 6 per cent. bonds, of which \$221,000 worth have already been redeemed. The company's advertisement is signed by the Royal Securities Corporation, Toronto.

* * *

The dams which were recently completed on the Chaudiere are already showing splendid results. Aided by stop logs, the flow of water is meeting all requirements. The pulp mills at Hull and Ottawa as well as other industries are reaping the benefit.

* * *

The Toronto Paper Company at Cornwall has been given notice that it will

have to shut down in a few weeks, while the Dominion Government builds a retaining wall at the lock on the Cornwall Canal adjacent to the mills which obtain their power from the canal.

* * *

The Arthurs Company, Ltd., Powassan; Ont., has been incorporated with a capital of \$20,000 to take over the business of James Arthurs and build pulp and paper mills, etc. James Arthurs, J. N. Arthurs and W. F. Duncan, all of Powassan, Ont., are incorporators.

* * *

The Riordon Paper Company, Ltd., Montreal, is being reorganized with a capital of \$6,000,000 with wide powers to carry on the business of lumbering, manufacture of pulp, pulp-wood, timber and all articles into which wood enters; wood alcohol, calcium carbide, chemicals, to mine for minerals, etc., etc.

* * *

W. J. Gage & Company, publishers, Toronto, and who control the Kinleith Paper Mills, St. Catharines, Ont., this year as usual distributed a share of the profits among all members of the staff who had been twelve months or more in the company's service, the distribution aggregating over \$5,000.

* * *

The Riordon Paper Mill yards in Merriton were flooded last month by the overflowing of the old Welland Canal, caused by high winds and by the valves of the lock gate not having been closed. The old Lybster mill, work on the reconstruction of which by the Lincoln Paper Mills Company is making good progress, was also flooded.

* * *

The Fletcher Pulp & Lumber Company, Limited, Sherbrooke, Que., has been granted a Dominion charter to manufacture lumber, pulpwood, wood pulp, chemicals, etc. C. H. Fletcher, R. A. Ewing, R. H. Fletcher, and H. B. Fletcher, all of Sherbrooke, and J. W. Parker, of Portland, Me., are the incorporators.

* * *

B. C. Howard, pulp-wood dealer, of Sherbrooke, Que., contemplates the erec-

tion of a mechanical pulp mill near St. George de Beauce, on the Famine River and the Quebec Central Railway. Mr. Howard owns or controls large timber limits on that river, the wood from which has heretofore been shipped across the border.

* * *

The Canada Coating Mills, Georgetown, are very busy on orders and have had a highly successful year. At the annual meeting of the company, held last month, the following officers were elected: President, Robert Kilgour; vice-president, John R. Barber; manager and secretary, A. M. Huestis; superintendent, L. E. Fleck.

* * *

J. A. Bothwell, formerly manager of the Quebec and St. Maurice Industrial Company, and now manager of the Brompton Pulp and Paper Company, has, in association with F. N. McCrea, B. C. Howard and E. W. Tobin, purchased the interests of the Etchemin Lumber Company, at the point where the G.T.P. crosses the Etchemin River.

* * *

From Lake Megantic comes the news that large quantities of pulp wood are being hauled into town and the railway yards are being well filled up. Unfortunately, the demand is not very active. Purchasers are trying to buy at \$5.50 per cord, although \$6 has been paid, and some talk of \$6.25, loaded on cars.

* * *

The Ocean Falls Pulp and Lumber Company has opened a 150-ton capacity pulp mill at Cousins Inlet, B.C. The company has timber limits comprising 80,000 acres, showing, it is claimed, 40,000 feet of spruce to the acre, of which some 40 per cent. is looked on as being available for pulp making. Among those interested are Wm. Price, of Quebec; J. H. Campbell, Vancouver; L. W. David, of Seattle; J. H. Benn, of London, Eng., and J. S. F. Lowson, of Stratford-on-Avon.

* * *

Tenders will shortly be called in London for the large quantity of parchment

paper—to line butter boxes—required by all the factories in Victoria, New South Wales and Queensland (and possibly for New Zealand factories), the output of which is controlled by the co-operative distributing companies. Particulars of this contract will, as soon as available, be forwarded to the Department of Trade and Commerce, Ottawa, from whom interested Canadian manufacturers may obtain information.

* * *

The Western Canada Bag, Envelope and Box Board Company, Ltd., have secured a large lot in Sapperton, B.C., on which they will erect a large plant for making bags, envelopes, paper box board, building papers, carpet lining, roofing, belts paper boxes, cartons, etc. The capacity of the plant will be ten tons per day. It is believed that with the material advantages possessed by British Columbia for making pulp, etc., that the above lines of goods can be made in the province to good advantage.

* * *

The Royal Trust Company has instituted an action in the New Brunswick Supreme Court of Equity for the foreclosure of a mortgage for \$440,000 and interest for past ten years against the Alex. Gibson, Railway and Manufacturing Company, the object being to place the present owners of the business in a better position as to title. It is likely that the whole property will be taken over by American capitalists representing large pulp and paper interests, the price mentioned being about \$2,000,000. R. W. Shea, lawyer, and W. H. McHarry, both of Boston, are looking after the latter's interests.

* * *

Reports come to hand concerning large sales of pulp wood to the Quebec and St. Maurice Industrial Company, as representative of the Chaudiere Improvement Company. The negotiations, which involve a total of about 100,000 cords of wood are being carried through by the Chaudiere Improvement Co., in which B. C. Howard, the Chaudiere

Lumber Company, Silsby Lumber Company, and the Beauce Pulp and Lumber Company are interested. The prices named are said to be \$5.25 per cord for rough wood and \$7.25 for hand-peeled wood f.o.b. Chaudiere. Whether this deal will affect B. C. Howard's proposed plan to build a pulp mill at St. George de Beauce is, we understand, not settled at present.

* * *

The officers of the Ogdensburg Soda Pulp Company, which, as announced recently in these columns, has received concessions from the town of Prescott, Ont., to assist it in building a pulp mill are Honorable Mr. Lucy, P. F. Dooley, and John C. Millard, of Ogdensburg, N.Y., and P. K. Halkin and Jas. Buckley, of Prescott. They propose to build a mill with a capacity of 50 tons of soda pulp per day. This will be used for making high-class bond paper, though we understand it is not the company's intention to make the paper in Prescott for the present. The town will give the company an annual bonus of \$1,000 and exemption from taxes for a term of years providing they employ 60 hands for at least eleven months each year.

* * *

The action of School Section No. 1, Sturgeon Falls, against the municipal corporation of the town of Sturgeon Falls, over the payment of school rates levied on the Imperial Paper Mills, is to be stayed, on the understanding that the town shall not plead the payment by them to the Separate School Board as a good defence to mandamus proceedings by the Public School Board to compel the payment over to them of the whole of the rates for 1908. It was suggested that a special case should be stated as to the validity of the Act of 1904, and of the agreement, under which, since 1898, the town was to collect and pay over to the Public School Board the whole of the rates from the pulp mills, who were then to pay over to the Separate School Board

their share. The town has been collecting the whole of the rates but the Separate School Board has not been receiving its share, under the statute under the agreement. The sum involved, being the rates for 1908, amounts to \$1,197.67.



NORWEGIAN WOOD FLOUR.

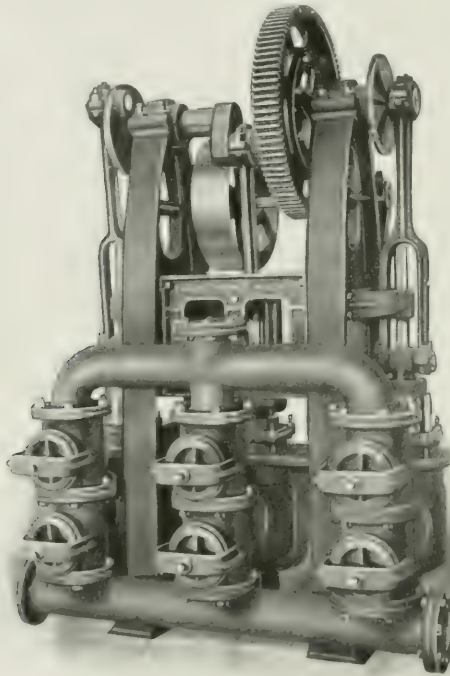
Henry Nordewich, United States Consul at Christiania, reports as follows concerning the manufacture in Norway of wood flour and the uses to which it is applied:—Wood flour, or pulverized wood, is an article distinct from wood pulp and cellulose. It is made use of in the manufacture of dynamite and linoleum. It is made from sawdust from sawmills. The requirements are that the sawdust shall come from spruce or pine logs, mixed or unmixed, and that it shall be perfectly clean and unmixed with any particle of bark. The sawdust is first kiln dried and then ground between mill-stones, in about the same manner as wheat flour; it is led through a tube into the hopper of a vibrating sieve, built somewhat on the principle of a fanning mill. The sieve is furnished with cloth covered slides, through which the mass must pass. The cloth is of such fineness that it holds from 2,500 to 4,000 meshes, or punctures, to the square inch. The cloth is manufactured in Germany. For shipment, wood flour is packed compactly in sacks by machines imported from the United States. The flour is made in six or seven grades. The principle markets for the Norwegian product are the United Kingdom, Germany and France; some is also exported to the United States. The export from Norway in 1907 amounted to 6,218 English tons, valued at \$12.73 per ton, or \$79,140. This value is that placed on the article for statistical purposes. Nearly all of the output is exported, as only small quantities are made use of in Norway.

SMART-TURNER STUFF PUMP.

The accompanying illustration shows a single acting triplex stuff pump, built by the Smart-Turner Machine Co., Limited, Hamilton, Ont. The pump is designed to give ready access to all valves, cylinders and working parts. Plungers are outside-guided and outside-packed, being water-sealed. Pump is

ANGLO-NEWFOUNDLAND DEVELOPMENT COMPANY.

The first shipment of about eighty tons of paper made at the new Harmsworth mills at Grand Falls, Newfoundland, was made a few days ago and will be used for exhibition purposes in England. It is to be followed by fortnightly

**Smart-Turner Stuff Pump**

brass-fitted, provided with bronze ball valves and bronze valveseats, which are held between the flanges of the valve boxes by through bolts, securely holding the whole together. There are no corners or pockets in which the stock may lodge. The valve-seats are so designed as to prevent the possibility of any sand or grit lodging on them. The driving gear and pinion are cut from the solid. The crank shaft and connecting rod are of steel. The whole pump is carefully built and is liberally designed. Further particulars will be given on application to the above company.

shipments of 1,000 tons of pulp and paper. A large extension of storage room is now being constructed. Present output of the mills is 50 tons of news, 20 tons of wrapping paper, and about 60 tons of mechanical pulp daily. The work of the machines has been highly satisfactory. The quality of the product of the black spruce of Newfoundland is also looked upon as being very gratifying.



The annual convention of the American Paper & Pulp Association takes place this week at the Waldorf Astoria Hotel, New York City.

UNUSUAL WEAR OF COUCHING FELTS.

Felts form one of the most important items in the budget of a paper mill, and means are always being sought for cleaning them without any risk of disturbing the work of the mill.

The felts that wear the fastest, and are therefore the source of most expense, are usually the couching felts. They are traversed as a necessary consequence of their position in the paper machine by large quantities of water containing size. Hence they very soon get dirty, and it has become customary during the last few years to fit the machine with washing presses, one inside the felt and serving as its cylinder, and one outside and covered by a sheath. Before coming between these two presses the felt passes between a number of rinsing jets, the water of which, being under very high pressure, softens the resin and loadings which tend to adhere to the surface of the felt. Once soaked with water, these bodies are partly eliminated by the pressure which the felt undergoes in passing between the washers. We say partly eliminated because, although the rinsing jets deliver large quantities of water, and the pressure of the washers is very great, the elimination of the impurities is never complete.

It is often found that the couchers crush the web, in spite of normal action on the part of the washing presses. The attendant has then but one resource—to stretch the felt; but it generally goes on crushing, in spite of the tension. If for reasons of drying or sizing the attendant cannot lower the couch rolls, he will be reduced to stretching his felt in an unsuitable manner, or to removing it from the machine for washing it apart. The latter course of action is one to which he will resort the least often, especially if he is working with a high speed machine. Hence he will prefer to stretch his felt excessively until, no longer able to resist the tension, it tears before it is quite worn out.

Under these circumstances there is a tendency to blame the attendant, but he is sometimes fully excusable.

Up to the present time in many paper mills the felt has never been stretched to prevent it from crushing the web, except lengthways, and the result has been far from corresponding with expectations. It is supposed that by stretching the felt the meshes of the fabric are widened, whereby the passage of the sizing water is facilitated. This is, however, a mistake. Everyone knows, in fact, that if any cloth is subjected to fairly severe tension it loses in width what it gains in length, and the meshes lengthen until they are obliterated by the warp threads coming into actual contact with one another, when as regards the passage of a liquid, the cloth is rather less permeable than before it was stretched. This is the case with a felt. When it crushes the paper, and when it is stretched to remedy matters, the crushing is stopped for the moment, but soon reappears.

This is what happens:—

When the felt has been in use for some time, even when it has passed between the rinsing jets and the washing presses, its nap is flattened down and made pitchy by the resin in the size. If the felt works straight the attendant lets it go on for a long time. The nap is not deranged, but is bedded into the fabric. Then as the nap has become pitchy it presents to the web at last a surface of unequal permeability, and the size-water pressed out of the web finds difficulty in passing through the felt, and puts the fibres of the web out of their proper order. Hence the crushing.

Now, if at this moment the felt is stretched, the crushed places really disappear, because the nap is raised again by the tension. But directly afterwards, when the nap has subsided again, the same trouble reappears. Hence it is easy to see that stretching a felt, even to the utmost limit, cannot be depended upon to prevent it crushing the web sooner or later.

The remedy for all these troubles is to stretch the felt both ways, i.e., in the direction of its width as well as in the direction of its length. To do this all that is wanted is to have two divided rollers, the two halves of each roller forming an angle, one roller being in front of the couching presses, the other in front of the washing presses.

Many mills have discarded these rollers, with the idea that they drag the felt in the middle and so tear it. This is a mistake, although if the angle is too sharp and the roller is too heavy on the felt, the effect feared may be produced, and the felt will be torn, because each half of a smooth roller will drag half the felt, not all over, but at the middle only. Hence the middle of the felt has to stand, unassisted by the rest of the fabric, two contrary tensions, and will finally give way. The divided roller should form a small angle only, say, with its ends about one inch in front of its middle; and it should not be smooth, but finely grooved, with grooves not exceeding one-eighth of an inch in depth. If this arrangement is adopted, it is clear that the grooves will compel the roller to act all over the width of the felt and stretch it uniformly, and not exclusively at the middle of its width.

To enable the attendant to use the divided rollers in the best possible manner they must be mounted in adjustable bearings, so that their position can be changed, and so that they can be straightened when the felt is sufficiently stretched. Such rollers have long been used in the calico trade.



RUSSIA AS A PULP PRODUCER.

It is always well to know that resources are possessed by other countries and in what measure they are liable to act as competitors in any given line with our own. Some judges in Europe believe that the coming pulp producer on a large scale is Russia, and it is a fact that even Norway is now importing pulp-wood from that country. Not only that, but a movement is under way there looking

to the development of a wood pulp industry on a large and greatly extended scale. Russia's domestic consumption of paper has vastly increased during recent years, more particularly in news print since the inauguration of the Duma. It behooves Canada to keep her eye on Russia not only in regard to possible rivalry in pulp manufacture but in several lines of dairying and farming.



—P. Thomas, representing Escher Wyss & Company, of Zurich, Switzerland, known throughout the world as specialists in turbines and water power developments, has been on a visit to Canada. Mr. Thomas has made a trip west to the Pacific Coast and is impressed with the great possibilities of Canada in the development of water power. The Shawinigan Water & Power Company of Montreal placed an order with his firm for a 10,000 horse-power turbine, and the Western Canada Power Company, of Vancouver, has also ordered two turbines of 13,000 horse-power each with two exciter turbines of 500 horse-power each for their power plant at Slave Lake. Escher Wyss & Company have now a contract for the largest turbines ever built. These are for the power company at Christiania, Norway, and consist of a series of five turbines of 14,500 horse-power each. The same company supplied the turbines for the Ontario Power Company at Niagara Falls, Ont.

—There is a "screaming example" of how our pulp policy works at Fort Frances. The visitor to that city is quickly attracted by the sight of a mammoth white brick building. But it is not in Fort Frances. It is situated in a Minnesota village across the Rainy River. It is a pulp mill, said to be the largest in the world. Yet virtually the whole of its raw material comes from Canada. If it had to get its logs elsewhere it would soon be in dire distress, and in no long time would have to close or move to where the logs are.—"Port Arthur Chronicle."

MONTREAL PULP AND PAPER NEWS.

(Special to Pulp and Paper Magazine.)

Montreal, Feb. 3, 1910.

The Nicolet Falls Pulp and Lumber Company of Danville, Quebec, held its annual meeting of shareholders in that town on the 24th of January, and the statement of the year's operations, which was presented, indicated that the company was in a flourishing condition. The officers elected for the ensuing year were: O. Vilandre, president; B. Quinn, vice-president; F. B. Chadsey, treasurer; O. Lamoureux, secretary, with the following board of directors: F. N. McCrae, Sherbrooke; Philias Milette, Windsor Mills; J. H. Crepeau, St. Camille; E. W. Tobin, M. C. Bromptonville, and J. E. Lepine, St. Geo. de Windsor. Among those present were: Hon. P. S. G. McKenzie, Richmond; J. A. Bouthellier, Sherbrooke, B. Quinn, Windsor Mills; J. H. Crepeau, St. Camille; F. B. Chadsey, Nicolet Falls; O. Lamoureux, N.P. South Ham; J. H. Vilandre, Danville; Joseph Lepine, St. George de Windsor.

A Laurentide Case.

Trouble has arisen between the Laurentide Pulp and Paper Company and Messrs. McDonald & O'Brien, and the matter has now reached the courts. It would appear that the Laurentide Company charge Messrs. McDonald & O'Brien with trespassing upon their limits and cutting therefrom considerable quantities of timber. They have entered a claim for \$1,216 damages, in connection with the matter. The defendants apparently consider that there is some foundation for the charge made by the plaintiffs, in as much as they offer to pay at the rate of \$4 per 1,000 feet for the wood taken. This, however, is not acceptable to the plaintiff and the matter has been taken en delibere by Judge R. S. Cook, of Three Rivers.

Newfoundland Progress.

The first paper apparently to be turned out of the mills owned by Lord Northcliffe, who, it is claimed, is the owner of some forty papers in Great Britain, in-

cluding the London Times and Daily Mail, has recently been used for printing an edition of the Evening News. It will be gratifying not only to Newfoundlanders but to Canadians to learn that the paper is reported to have been in every way satisfactory. That there should be any question regarding the quality of the paper which Newfoundland is capable of producing may seem strange to those who are unfamiliar with the situation there. For many years Newfoundland has been a stumbling-block with lumber companies. It would seem that some years ago practically every concern which was getting out logs and sawing them up in Newfoundland was in financial straits. Many explanations have been given for this condition of affairs. One company, it is stated, piled its cut of logs upon the ice the first season, and when the breaking up occurred in the spring the freshets quickly swept the entire cut down the river and into the sea, where the logs were lost. The following season the cut was piled so high up that the waters subsided before the lumbermen were able to roll them in. The consequence was that the logs were left in the woods that season. It has also been claimed that the Newfoundlander is a fisherman by nature, and will only cut logs as a pastime, and that under any conditions he is difficult to manage. That these reports of the Newfoundlander are incorrect, there is evidence in plenty. There are sections of Newfoundland where the natives would appear to know more about lumbering than fishing and apparently prefer that life. Also, firms which are now operating in Newfoundland claim that the Newfoundlander is one of the most satisfactory workmen with whom they have had to deal.

It is in view of these attacks made upon Newfoundland that the cable announcements from England are sure to give much satisfaction on this side of the water. It would seem that the

sample rolls of paper manufactured by Lord Northcliffe were used in part of an edition of the Evening News and that the test was carried out under the strictest practical conditions. The press room experts declared that, so far as newspaper printing was concerned, the paper from the Grand Falls mills was as fine as they had ever seen.

A Pulp Pioneer Dead.

In view of the fact that wood pulp is practically indispensable in the manufacture of paper, it is of no small interest to learn that the discoverer of the process of making paper out of wood pulp has just died. His name was Frederick Marx, and his home was in Marcy, about five miles from Utica, N.Y. He was a native of Germany, and was eighty years of age at the time of his death. He was a baker by trade and seems to have conducted a bakery in California in the early gold-mining days. He afterwards sold out and travelled in Europe, where he discovered the process of making paper out of wood pulp. Returning to America, he disposed of his invention to Warner Miller, who saw great possibilities in the process and exploited it.

The progress and the enlightenment of the world owes probably as much, if not more, to the newspaper than to any other single factor. If the printing of newspapers were suspended for a month the entire civilized world would be in darkness, and would probably have slipped backwards far down the hill of progress. If the cost of producing newspaper were increased to such an extent as to materially limit the circulation, something of the same result would follow. Hence, to the inventor of the process of manufacturing paper from wood pulp is due any honor which may be paid, for the process has gone far to make it possible to sell newspapers at their present low rate.

The semi-annual meeting of the Roll and Paper Company, Ltd., was held in Montreal recently. No financial statement was given out but it was stated that the company had had a very satisfactory half year.

The incorporation papers of the Fletcher Pulp and Paper Company, of Sherbrooke, P.Q., were recently granted at Ottawa. The capitalization is placed at \$300,000, and the names mentioned in the charter are those of Messrs. C. H. Fletcher, R. H. Fletcher, R. A. Ewing, H. B. Fletcher, of Sherbrooke, and Mr. J. W. Parker, of Portland.



VARYING MECHANICAL PULP.

A practical paper-maker describes how the quality of mechanical wood pulp and its suitability for certain classes of paper may be varied according to the conditions under which it is produced.

For instance, a coarse-grained stone with coarse-cut ridges produces 20 per cent. more pulp when the refiners are fed with highly diluted stuff than when the pulp is run through in a thick condition. But the pulp so produced is very splintery and requires very thorough milling in the beater-room, otherwise the paper will show a great tendency to stick to the couch rolls and press rolls. Also, unless the wood used is quite freshly felled, the paper tends to give trouble by "fluffing." The power which is saved in grinding such coarse long-fibred pulp is lost again to a large extent by the extra beating which is required. Mixed with 20 per cent. of finely-ground mechanical and 20 per cent. of sulphite pulp, this coarse pulp works well on fast-running machines, but the paper produced is somewhat transparent, owing to the fact that the coarse fibre renders high glazing absolutely necessary.

A finer grained stone with somewhat finer cut ridges gives a production about 20 per cent. less, but the refining and straining require less straining than in the case mentioned above. Such pulp is most suitable for general work. When mixed with 15 per cent. of sulphite pulp it does not require much beating, and the stuff can be run at speeds up to 430 feet per minute on the paper machine, giving a smooth-surfaced, non-fluffing printing paper without heavy glazing.

GRAND FALLS POWER AND PULP COMPANY.

The contemplated development of the power from Grand Falls, New Brunswick, has taken another step forward, the report of the Government Commissioner appointed to decide on the amount of security to be taken from the Grand Falls Power and Pulp Company before they would be allowed to proceed to expropriate property at the falls having been presented. The conclusion is that security must be given to the amount of \$300,000, to be handed over to the Government in the form of a bond and as a guarantee that the parties whose lands and rights are taken over will be paid value for them as hereafter to be decided by the courts. There are two companies interested in the outcome of the controversy.

Some years ago, in the nineties, Sir William Van Horne, Senator Proctor and a number of others, some of whom were interested in the Laurentide Paper Company, secured a lease of certain lands on both sides of the River Saint John at Grand Falls. They also had a charter from the Dominion Government and one afterwards from the local government, giving them authority to utilize the power at the falls and to erect pulp and paper mills, etc., etc. The plans were prepared at that time, but for various reasons nothing further was done. Some four or five years ago two Americans, Messrs. McLaughlin & Kingston, secured a charter for themselves and some others from the local government, under the name of the Grand Falls Power Company, which charter was very wide in its provisions. It gave them a lease of all water power within two miles of the falls and also authority to expropriate any properties that they might need for their undertaking. They, however, were to go ahead with their work within a certain time, otherwise their charter would be forfeited as well as the \$50,000 which they had put up. They secured from the old government an extension of time, which would expire

on the 30th of last November, on condition that they spent at least \$200,000 before that date in bona fide development of the property. They also obtained from the town of Grand Falls a lease of what is known as the commons land, which runs along the banks of the river both above and below the falls.

Last year they began sinking a shaft in the basin above the falls, and when they stopped in November were down probably about 140 feet, the shaft being about 14 feet in diameter. Their plans call for a tunnel underneath the town, starting from this shaft. They notified the government last year and also Sir William Van Horne that they would expropriate the property owned by Sir William Van Horne and his friends. Under the terms of their charter before they could expropriate or take possession of the land, the part that they wished to expropriate should be valued by some one appointed by the government, after which the government would name the amount the company should put up in cash or guarantee the company's bonds before they could take possession. The New Brunswick Government appointed Mr. J. Norman, W. Winslow, of Woodstock, N.B., the commissioner for the purpose of valuing the Van Horne property. Both companies appeared before him with their counsel and submitted evidence for and against. Mr. Winslow brought in a report in which it was stated that the Van Horne properties if supplied with good storage would have a steady run of 38,000 horse-power, and the property was valued at \$300,000, which would pay about \$8 per horse-power undeveloped. Since this report was filed, an American company claimed to have spent up to the 30th of last November \$350,000 in development work and they proposed filing a bond for \$300,000 and going on with the work, having, as they state, arranged for the financial end of it. As to whether they have been able to do this or not we do not know.

The Van Horne property is only a portion of the property. The American

company's part is more valuable in one way, but some believe they should be consolidated as neither could be worked to advantage without the other. If one company owned the whole property with the franchise that the American company have they could develop easily a steady 8,000 h.p. 24 hours a day of for 365 days in the year, and with greater storage of the lakes above could go higher. The property at the falls, owned by the two companies if consolidated under their charter, would be worth undeveloped not very far from what Sir William Van Horne put it when examined under oath, namely \$1,000,000.



FOREST RESERVES ACT.

The Ontario Legislature has taken power to proclaim any part of the public domain as a Crown Forest Reserve after date of proclamation of which no land within such reserve shall be located, sold, leased, or disposed off for agricultural settlement. Each reserve shall be under control and management of the Minister of Lands, Forests and Mines. Timber thereon damaged by fire, or which has attained mature growth may be offered for public sale subject to the regulations. The Minister, for the purpose of creating a Crown Forest Reserve, may arrange with any holder of a timber limit which has been cut over, and upon which young pine is growing, or which the Minister is satisfied will generally reproduce pine timber, for the surrender of such limit or any part thereof upon such terms and conditions as to the redemption of any timber dues or ground rent at any time thereon which may be due or owing to the Crown in respect thereof and upon such other conditions as may be set forth in the report of the Minister and approved by the Lieutenant Governor in Council, but no payment of money shall be made for any such surrender until an appropriation for that purpose has been made by the Legislature.

PAPER TRADE OF NORWAY IN 1909.

The year 1909 has undoubtedly been one of the dulllest in the history of the Norwegian paper industry, says Commercial Agent, C. E. Southam. The factories have partly been working from hand to mouth and have been experiencing difficulties in getting the necessary orders to keep the machinery going. This is true of all the factories, although conditions have been a little more satisfactory for those that are chiefly making printing paper on reels, these factories working more on running contracts. But even in this branch the general easiness of the market has been greatly felt.

The reasons for the difficulties must, of course, be seen in connection with the general easiness which has for some time been ruling on the world markets, and prices have for this reason been falling for nearly all marks. During 1909 they have reached a minimum, which could hardly have been anticipated, when it is taken into consideration that wood pulp prices have ruled generally firm during this period.

For a few marks of paper some advance has fortunately been noticeable; especially for such marks that are exported to Eastern Asia, such as M. G. Cap and Thin New. For these marks orders have, during the last four months, reached a fair amount after a period of one year during which such orders were very scarce. About the middle of this year prices for these marks were so low that they probably were below actual cost of production; for this reason the higher prices caused by heavier orders are so much more welcome.

For wrapping paper there seems to be some tendency to better conditions, but so far it has not showed any other effects than a little better employment of the mills and a little safer feeling. As far as can be seen at present the improvement has come to stay for some time.

REPORT OF THE LIQUIDATOR OF THE CORNWALL PAPER MANU- FACTURING COMPANY.

The following notice to creditors of the Cornwall Paper Manufacturing Company, Cornwall, Ont., was recently sent out by the Trusts and Guarantee Company, of Toronto, which acted as liquidator of the insolvent company:

"Dear Sirs,—We beg to report that this company as liquidator has proceeded with all dispatch in the winding up of the Cornwall Paper Manufacturing Company, Ltd.

"As you are no doubt aware, it was thought at the time the company went into liquidation that the assets would not produce sufficient to meet the secured and preferred claims, but, with the approval of the court, the business was carried on as a going concern with a view to making the assets realize anything like the amount of the aforesaid claims, and we are pleased to be in a position to advise you that by reason of our management of the affairs of the insolvent company since our appointment sufficient moneys have already been realized to pay these classes of claims.

"There were a number of onerous contracts in force at the time of our appointment, notably one covering the supply of electricity. When the sale of the plant was made, owing to a dispute with the power company, the court directed the sum of \$5,000 to be held for a period of two years from March 20 last, to cover damages, if any, which the purchasers might sustain in connection with the dispute with said power company. It was necessary to agree to this condition to effect a sale of the assets at anything like a reasonable figure. The purchasers and the power company are endeavoring to arrange a settlement, and it is hoped that some amicable arrangement will be arrived at prior to March 20, 1911.

"It is expected that when the dispute in question is adjusted and this fund becomes available, that there will be a

dividend (necessarily small) declared in favor of the unsecured creditors.

"We regret that it is not possible for the court to direct the payment of a dividend at the present time; but as soon as the dispute over the power supply is settled we will make an immediate application to the court and secure the necessary order for the declaration of a final dividend herein. Yours, truly,

"E. M. Stockdale, Assistant Manager, Liquidator of the Cornwall Paper Manufacturing Company, Ltd."



CANADIAN FORESTRY ASSOCIATION CONVENTION.

Upon the invitation of the Government of New Brunswick the eleventh annual convention of the Canadian Forestry Association will be held in the Legislative Buildings, Fredericton, N.B., on Wednesday and Thursday, February 23rd and 24th. The sessions will be opened at 10 a.m., on the 23rd by addresses from the representatives of the Government, Municipal, Educational, and Commercial institutions, etc.

It is expected that the president, Mr. Thomas Southworth, of Toronto, will preside and the following have already signified their intention of taking part:—Hon. Clifford Sifton, Chairman of the Commission of Conservation; Hon. Jules Allard, Minister of Lands and Mines, Quebec; Hon. W. C. H. Grimmer, Surveyor-General of New Brunswick; Dr. B. E. Fernow, Dean of the Faculty of Forestry, University of Toronto; Mr. E. A. Sterling, Forester of Pennsylvania Railroad; Mr. W. C. J. Hall, Supt. of the Bureau of Forestry, Quebec; Prof. Gordon Tower, of the University of Maine; Prof. R. B. Miller, of the University of New Brunswick, etc.

It is expected that the Forestry work of the Dominion and of the Provinces will be well represented. The railways have granted special rates and a large

attendance is expected. Further information may be had by addressing the Secretary of the Canadian Forestry Association, Mr. James Lawler, who will be at Fredericton till after the close of the convention.



ESTIMATION OF ROSIN IN SULPHITE PULP.



PAPER HORSE SHOES.

Dr. Steinschneider, who has been making some researches as to the relative value of alcohol and ether for dissolving rosin out of the pulp, in estimating the amount of the useless, if not harmful, impurity, finds that the pulp he tested yielded the following percentages of resinous extract:—

After macer- ation for	To ether.	To alcohol.
5 hours	1.15	1.54
8 "	1.17	1.62
10 "	1.18	1.70
12 "	1.14	1.71
16 "	1.15	1.70
20 "	1.14	1.84
24 "	1.15	1.82

The rosin extracted gave the following figures:

	Rosin extracted by ether.	Rosin extracted by alcohol.
Saponification No., hot	161.3	158.9
Rosin No.	131.5	126.6
Saponification No., cold	168.2	169.4

Both extracts gave the typical rosin reaction, viz., that their concentrated solutions in glacial acetic acid were reddened by the addition of concentrated sulphuric acid. Both dissolve completely in glacial acetic acid and in hot methyl or ethyl alcohol, separating, however, in crystals on cooling.

It is evident from the above data that the alcoholic and the ethereal extracts

are practically the same, and also that alcohol is a far better solvent under the circumstances than ether, the use of which latter body is apt to lead to considerable underestimation of the amount of rosin in the sulphite pulp.

For years railway car wheels have in some instances been constructed of paper. Indeed, it would be hard to make an announcement of a new use of that material that would occasion any lively surprise. And yet the introduction of horseshoes made of paper seems extraordinary enough to excite interest. Several cavalry horses were first shod with paper shoes, and the effect was observed. It was found that not only did the lightness and elasticity of the shoe help the horse on the march, making it possible for him to travel much faster and farther without fatigue than horses shod with iron, but that the paper shoe had the property of being unaffected by water and other liquids. Shortly thereafter the proposal was advanced to replace iron with paper horseshoes in the entire army. The paper shoes are made of a great number of thin sheets of paper pressed closely together, one above another, and rendered impermeable to water by the application of oil of turpentine. The sheets are glued together by a sort of paste composed of turpentine, whiting, gum and linseed oil, and then submitted to a powerful hydraulic pressure.



—The Don Valley Paper Co., manufacturers of highgrade wrapping papers, bags, manilla and specialties, have issued a pleasing calendar, showing views of their mills, the re-equipment of which was described in our pages a few months ago.

SOLUBLE CELLULOSE.

The object of this process, invented by Pascal Marino, and the subject of an English Patent, No. 7430 of 1908, is the production of cellulose which can be dissolved in some of the ordinary solvents without undergoing any destructive action, and which consequently can be recovered from the solution in its primitive form.

The soluble cellulose is obtained by treating pyroxylin with certain reagents, mentioned later, and working as described:—In the first place an alcoholic solution of manganese chloride is prepared (a), and an alcoholic solution of ferric sulphate (b); then an alcoholic solution of sodium or potassium ethyl sulphate (c). In each case the weight of the substance dissolved is about 10 per cent. of that of the pyroxylin treated. These three solutions are mixed together and the whole is diluted with ether in about equal parts. The pyroxylin is next dissolved in the liquor thus obtained. If it does not completely dissolve, more ether and alcohol can be added, or any other suitable solvent like acetone or ethyl or amyl acetate, which will dissolve the pyroxylin more thoroughly. Freshly precipitated magnesium ammonio-phosphate is separately dissolved in a solution of phosphoric acid (specific gravity about 1.12) or in another mineral acid. The proportion of acid taken is about 10 per cent. of the weight of the pyroxylin solvent employed and a saturated solution of magnesium ammonio-phosphate is prepared.

This new solution is then added to the mixture containing the dissolved pyroxylin and all well mixed. The mixture is heated at 25° C., for about 12 hours. Water is then added to precipitate the cellulose, and when all is cold the cellulose is deposited. The liquid is decanted or filtered and the residue is cellulose, both soluble and unflammable. The liquid is a valuable by-product.

The process may be slightly modified by suppression of the ether, acetone, or other substances mentioned as solvents of pyroxylin. In this case the solutions a, b, c, are also mixed in the same proportions, and then the pyroxylin is added. The mixture thus obtained is mixed with a saturated solution of the phosphate, prepared as before, in a quantity of acid equal to one-tenth of the combined weight of a, b, c. All is well mixed and heated as described. The soluble cellulose obtained by this means can be separated by pressure from the liquid which contains it. Though the pyroxylin does not enter into solution in saline alcohol, it nevertheless undergoes a chemical modification, and is transformed into a variety of cellulose soluble and unflammable, without visible change in its aspect.

The cellulose obtained by either process when quite dry can be dissolved in a suitable solvent, like acetone, alcohol-ether, etc.

This cellulose has, to a remarkable degree, the property of absorbing numerous substances especially dyes, and is consequently of value for industrial purposes, e.g., dyed cellulose or textiles. The liquid from decantation, filtering, etc., can be utilized to fire-proof paper, cotton textiles, linen, wood, etc., as follows:—The acid component is neutralized, e.g., with a basic oxide or other suitable agent. When phosphoric acid is used neutralization can be effected with sodium carbonate. Then the solution is boiled with ferric chloride and sodium acetate. The precipitated ferric hydrate carries down all the phosphoric acid. The solution thus obtained can be profitably diluted with three times its volume of water or methyl alcohol before use and then applied to the paper, wood, etc., by steeping the objects in the solution or other suitable method.



The McLeod Paper Company, Liverpool, N.S., will shortly erect a steel pulp-wood conveyer.

SURFACE GLAZED PAPER.

There is no doubt that glazing on one side improves the appearance even of the commonest kind of wrapping, so that they can be sold at a better price than even calendered papers of the same quality.

Perhaps the most usual cause of defectiveness in papers glazed on one side is the use of a worn-out drying cylinder. The writer has had occasion to see in certain paper mills very faulty cylinders of cast-iron, cracked in places and scored into grooves by the doctors. Such cylinders make streaks on the paper that stand out very sharply after glazing. Too much care cannot be bestowed on keeping the cylinder surface perfectly uniform and smooth. Even badly worn cylinders can be rectified by taking off the coarsest ridges with a carborundum wheel and finishing off with emery. This work can be done in about eight weeks, without stopping the machine on its account, advantage being taken of the necessary interruptions.

The first thing to be done is to see to the doctors. The first should have a bronze blade of medium hardness, as its function is to remove the coarser dirt entirely, while at the same time loosening the fine dirt which is often bound to the paper by deposits of lime salts. The second doctor ought to be made of lignum vitæ covered with carborundum cloth of a fineness according to the surface of the cylinder, the finest being, of course, used if the cylinder surface is still fairly smooth. There should also be a third doctor, sheathed in a polishing sleeve. The use of ordinary sand or emery paper is to be avoided, as it is impossible to secure uniform action, while if the metal surface is in a very bad state it would be far too laborious.

Turning now to the raw material to be used for papers glazed on one side only, we have first to combat the old idea that they must of necessity be made for soda pulp. That this is not the case is proved by the fact that sulphite pulp is largely used nowadays for

the purpose. Even mechanical pulp can be used in skilled hands. The pulp intended for one-side glazed paper must on no account be too greasy, in spite of the fact that a more beaten pulp felts better.

This difficulty is met by making a greasy pulp, and then mixing it with short fibres obtained in other operations. By regulating the composition of the mixture we are enabled to make several different kinds of paper for glazing. At the same time, the mixed pulps must not leave the apron in too thin a condition, as for the same mixture the felting, and hence the strength of the paper, requires a certain pulp concentration, although further thickening of the pulp is without further effect. If two pulps have to be mixed, as is usually the case, it is best to run them together into the sand-catcher, so as to do the first part of the mixing there.

It has recently been suggested that the following arrangement would answer well for making papers glazed on one side: A small india rubber or iron roller wrapped with cloth as usual, and about 6 in. in diameter gives the necessary pressure against the drying cylinder by means of a lever weighted according to circumstances. During the glazing one small roller supplies a trace of oil to the web, and another feeds it with a dilute starch paste made by boiling potato flour with its own weight, or a little more, of water.—Papier Fabrikant.



SPENT LIQUORS.

William J. Hough, of Toledo, Ohio, has invented a process of treating "spent" pulping liquors. It is a method of treating a "spent pulping" solution containing ligneous matter, whereby valuable products are obtained from the ligneous matter and the reagent in the pulping solution recovered in a new, facile and economic manner.

The process involves the liberation of the cellulose of resinous vegetable fibres material by the action of chemical solutions upon the material; the reproduc-

tion from the chemical solution of the original resinous matter, or a product of its further manipulation; the production of oil and of gas from the ligneous matter; and recovering the alkali in case the chemical solution is an alkali compound.

Inasmuch as the art, says the inventor, to which this invention refers consists of a number of related and sequential operations, the present invention may be best understood from an explanation of these individual steps. Accordingly, I will proceed in this specification to set forth the separate consecutive steps as actually practised, beginning with the provision of the raw material to be treated and ending with the recovery of most of the reagent that has been employed, and explaining particularly the one of said processes which constitutes my present invention.

Vegetable fibrous material may be said to consist substantially of moisture and insoluble cellulose, soluble ligneous substances, and in many cases resin or oleo-resin. In this specification all the organic constituents of the fibrous material aside from the cellulose and resin, or oleo-resin, will be termed ligneous matter, for the sake of brevity.

Treatment of the Vegetable Fibrous Material containing Resin to Separate it into Resinous Matter, Ligneous Matter and Cellulose.—The fibrous material is treated according to the ordinary processes for the manufacture of wood pulp, as by a hot alkali solution. In the process of digestion the resinous matter and the ligneous matter are so affected by the chemical used that they are liquefied, while the cellulose remains practically unaltered as a solid. As the next step in the process I separate the cellulose or pulp, the resinous matter, and the alkali solution containing the ligneous matter, and treat the two latter separately as hereinafter described.

Separation of the Resinous Matter, Ligneous Matter, and Cellulose.—In the process of digestion the resinous matter and ligneous matter are liquefied, while

the cellulose remains as a solid. I now separate the cellulose from the other two major constituents of the wood by drawing off the liquid or by a filtering operation. In this solution the ligneous matter remains permanently dissolved, while the resinous matter, now in the form of an alkali compound, or resinate, separates from the solution in the solid state on standing and may then be removed.

Instead of separating from the insoluble cellulose both the liquefied resinous matter and ligneous matter contained in the solution, I may allow the resinous matter to separate and solidify while in contact with the cellulose, and then draw off the solution now containing practically none of the resin, recovering the resinous matter from the pulp as by a subsequent washing. Upon standing, the dissolved resinous matter is precipitated, a portion settling to the bottom, while another portion remains on top, and some is held in suspension. I may separate the solid resinate on top by any of the usual methods, then separate the remaining solid resinous matter with the cellulose, draw off the solution containing the ligneous matter, and then recover the resinous matter in contact with the cellulose from the cellulose by washing. For further explanation of the method of bringing about the separation of the resinous matter, reference is made to my co-pending application, Serial No. 493,680, filed May 3, 1909, for process of recovering resinous matter.

We will now consider the utilization of the resinous matter separately as above:

Utilization of the Resinous Matter.—The resinous matter recovered as above described from a solution resulting from an alkali treatment of fibrous material containing resin, is obtained in the form of alkali compounds of resin, called resinates, which I may use directly as soap; or which I preferably purify from coloring matter; or I may obtain by treatment of the alkaline resinous matter with acids, free resin.

which is a very valuable product. The alkaline resinous matter I may also utilize for the manufacture of valuable oils by distilling it destructively; in so doing I recover the alkali combined in it.

Utilization of the Vegetable Matter other than Cellulose or resinous Matter.—The liquid containing the extracted ligneous matter, and from which the resinous matter has been separated, is now concentrated as in the ordinary processes, by evaporating from it the major part of the water contained. I now subject the resulting concentrated liquid to a destructive distillation, by which means I recover from it gas and oils, which are produced by the action of heat alone, and at the same time the alkali which was contained in the liquid remains in the still, and this alkali is purified and prepared for further use by the ordinary process of lixiviation, etc. If it is desired, the highly concentrated liquid, before being destructively distilled, may be deprived of all the water which it contains by a further heating, as in open pans, for instance.

The oil which I obtain from the ligneous matter is a valuable commercial product, which, among its other uses, is particularly of service as a wood preservative. The gas produced may be utilized to furnish heat for the reaction or for any other desired purpose. The impure alkali remaining in the still may be rendered liquid by heat, and then withdrawn for purification.



FADING AND YELLOWING OF COLORS ON PAPER MACHINE.

Many manufacturers of dyed papers meet with difficulties due to destruction and alteration of the colors of the web caused by the drying cylinders, and, strangely enough, in some cases the difference on leaving the drying machine is greater when the shade was deep to begin with than when it was slight. It is true that dyes can be selected which relieve us from this trouble, but such

dyes are among the more expensive kinds, so that other than this simple means of preserving the original tint must be discovered. It must be observed, in the first place, that the difficulty under discussion may occur whether the pulp from which the paper is made is bleached or unbleached. At the same time, the source of the trouble may be sought in the pulp. If that is unbleached it may contain traces of caustic soda, if it is chemical pulp, that do not act upon the dyes in the web until the heat of the drying cylinders concentrates them and adds the assistance of heat to their strength. If it is bleached it may contain traces of chlorine, which act exactly like the traces of caustic soda in unbleached paper, under the same conditions.

Cases, however, occur in which the trouble cannot be referred to the use of imperfectly rinsed pulp. Here it is due to excessive or too rapid drying. The writer has noticed cases in which boards made from perfectly pure bleached pulp dyed with eosine and safranin came from the drying violet. In other words, the red intended was mixed with blue. Investigation showed that the larger the number of drying cylinders used the more pronounced was the change of the red to violet. When the paper was three parts dried it still showed a fine eosine red color, but the completion of the desiccation gave a turbid, dirty violet. Further investigation showed that the harmful effect was not due to repeated heating, but to the use of too high a temperature. The remedy is actually to use more drying cylinders, which permits of the separate cylinders being less heated than when only a few are used. This precaution will be found sufficient in most cases. The prevalence of too much alum in the size has the same effect on the color as overheating on drying, so that no more alum than is required to mordant the color should be used. It is only the excess left uncombined that injures the color on drying.

PAPER MATERIALS THIRTY YEARS AGO.

The "World's Paper Trade Review" recently disinterred some paragraphs from its issues of thirty years previously relating to the supply of raw material. At that time rags had had their day as the staple raw material and were being replaced by straw and esparto. Straw has now almost disappeared from the British paper-makers' list. Wood pulp, while not unknown, was practically not used at all. The paragraphs are as follow:—

"The question of a fibre supply must soon draw serious attention. There is no doubt that a new fibre is wanted by our paper-makers. The days of straw, it seems to us, are numbered. The new machinery introduced into the science of agriculture has made marvellous progress among cattle feeders, and now new cooking machines are made for steaming straw chaff for food. Cattle eat it well, if steamed and judiciously mixed with other material.

"Further, the low price of corn makes the cereal crop a matter of indifference to the farmer, except he be near a town. Then he can sell his straw, otherwise the law of tendency forbids the export of straw from the farm. Hence, country farmers prefer laying their land down to grass and grazing cattle. It is not so expensive and a much pleasanter method of life altogether.

"With straw diminishing every year, in time the paper-maker will have to turn his attention to some other fibre. Straw is not a very good fibre, as all paper-makers know, but it is a useful one, and very cheap in times of good harvests and when not required for feeding. Agriculture has been notorious for sluggishness of progression; but as soon as farmers wake up to the fact that straw can be made into meat, they will rather convert it so than into paper.

"Litter and fodder also have a claim, and, though a process is in existence—and two London papers depending for

their supply upon it—for purifying stable straw, we do not think any great importance can be attached to this phase of the straw fibre supply.

"What we wish to call attention to is this: Are paper-makers on the qui vive? Are they preparing for the pinch, so that when it comes they may be ready? Rags, even of the commonest brands, are essentially a change from straw. They are higher in price, require different machinery, different treatment, and produce a different fibre. We think that paper-makers depending upon straw would do well to look around and see what the weather looks like."



PACKING OF PAPER FOR JAPAN.

The following letter has been received by A. W. Harris, Canadian Trade Commissioner at Yokohama, from a Japanese importer of Canadian paper:—

"The paper rolls were packed in thick paper boards, and were put up tightly and securely. It would have turned out in perfectly good order and condition had it been packed and protected with wooden boards, as in the case with European paper, instead of being packed in paper board, which latter, though looking strong, was apt to tear, and was affected and cut into by the small stones with which the landing-places at the customs abound. In consequence the majority of the rolls were found more or less damaged on the surface. Against such damage, caused by insufficient packing, the steamship company is not responsible, so we have had to stand the loss ourselves. The paper, both glazed and unglazed, as we have received it, seems to be all right. But its weight being too heavy, though invoiced at 45 pounds per ream, we have had to pay extra duty, which naturally adds to cost, and do not consider a business will result in the near future, unless Canadian makers can see their way to make their paper much thinner and cheaper, as those from Continental manufacturers."

SECOND HAND ENGINES FOR SALE.

- 1 **Brown Engine** 20 $\frac{1}{2}$ x 54. 62 R.P.M. 300 H.P.
16 ft. x 31 $\frac{1}{2}$ in. fly-wheel, complete with Bulkley
Syphon Condenser and usual valves, fittings and
indicator piping.
- 1 **Brown Engine** 13 x 34. 60 R.P.M. 70 H.P.
complete with usual valves, fittings and indicator
piping. **Apply for Prices, etc.**

- 1 **Peerless Engine** 11x10, 35 h.p., 283 r.p.m.
two 4 x 12 $\frac{1}{2}$ in. fly wheels, complete with usual
valves: fittings and indicator piping.

- 1 **Slide Valve Engine** 10 5-16 x 24. 84 R.P.M. 10
ft. x 16 in. fly-wheel, complete with usual valves
fittings and indicator piping.

MONTREAL
TORONTO

CANADA PAPER CO.
LIMITED

WINDSOR
MILLS, P.Q.

FOR SALE

- 1 WET MACHINE, 78" wide.
- 2 HYDRAULIC TRIPLEX PUMPS, 1 $\frac{3}{4}$ " dia.
of plunger, 4" stroke, pressure 1,500 lbs.
- 1 HYDRAULIC TRIPLEX PUMP, 1 $\frac{3}{8}$ " dia.
of plunger, 6" stroke, pressure 1,500 lbs.
- 2 HYDRAULIC PRESSES, cylinder 20" dia.
daylight 4' 3", lift 32", size of platen 30" x
40", pressure 1,500 lbs.
- 1 KNUCKLE JOINTED BALING PRESS,
daylight 5'-8", lift 2'-1", platen 24" x 36".
- 1 HYDRAULIC ACCUMULATOR, 9" ram
by 10' long, pressure 1,500 lbs.

All in good order. Apply

Jonquiere Pulp Company

JONQUIERE, QUE.

WANTED

Position as superintendent or builder of
Sulphite Pulp or Wood Pulp Paper Mill. Wide
experience abroad. (U.S., Scandinavia, Russia,
etc. as well as in this country. Highest testi-
monial for economical construction. Consump-
tion of sulphur in last mill built 8%. (As against
12-18%.) Brown Mech. Pulp and Paper (= imitat
"Kraft"), a specialty. Correspondence solicit-
ed. Address, R.S.T. c/o this paper

WANTED

Correspondence with parties interested in
starting a mill for "natural" brown steamed
wood-pulp and paper. The advertiser is a
specialist in this line from Scandinavia.
Highest testimonials. Address C. E. B., c/o
Pulp & Paper Magazine of Canada

FOR SALE.

Two Daniel Cutters, arranged to run
tandem. These cutters were doing good
work before taken out.

Box 12, "Pulp and Paper Magazine."

FOR SALE.

Two Whyte oscillating paper machine
screens. Capacity, three tons each per
day. Good as new. Box 11, "Pulp and
Paper Magazine."

POSITION WANTED by mechanical
engineer and chemist. Up-to-date on
direct and indirect cooked sulphite, both
strong and easy bleaching, construction,
maintenance and bleaching. Address,
"Efficient," "Pulp and Paper Magazine."

SCANDINAVIAN, experienced on soda
cellulose and sulphate of soda cellulose,
"Kraft Pulp," wants position with re-
liable firm; wide experience in the build-
ing line. Address, "Kraft Pulp," "Pulp
and Paper Magazine."

In further reference to the Beaver
Manufacturing Company, of Beaver
Fall, N.Y., which proposes to erect a
factory in Ottawa, it will manufacture
wall paper and wall boards, and it has
already made arrangements with mill-
on the Chaudiere for a supply of pulp.
It is not asking concessions from the
city, but desires the help of the city in
obtaining a suitable location.

HOW'S YOUR FIRE PROTECTION?



EDDY'S FIBRE FIRE PAILS

are always ready to fight the Fire Fiend. Oval-bottomed, strong and lasting. Water is always right at hand in the building equipped with them. Why not investigate? Made by

The E. B. EDDY CO., Limited
HULL, CANADA

**Always, everywhere in Canada, ask for
EDDY'S MATCHES. Here since 1851.**

PAPER and PULP MILL for SALE on EASY TERMS

consisting of

1 68-inch Machine. 3 New England Grinders. 2 Jordon Engines. 3 Gotham Screens. 2 Gould Screens. 2 Goodrick Screens. 1 Horne Beater Engine. 3 Tub Beater Engines. 1 Bulkley Condenser, nearly new, suitable for 300 H.P. Engine. 1 Worthington Pump, nearly new, No. 122,950, 152 x 216 x 152, 6 x 8 x 6.

And a large number of pumps of various sizes and makes; also, a lot of rubber belting, nearly new, running in size up to 24-inch; also, piping, valves, and, in short, everything needed to equip a paper and pulp mill. The pulp grinders are in extra good condition. Also 400 to 500 60-inch boiler shells suitable for penstock. We would take part interest in a paper or pulp mill as part payment for this machinery.

P. J. RILEY & CO., Lowell, Mass.

AN APPRECIATION OF DR. FERNOW.

Somewhat picturesque is the appreciative criticism given by the "New York Times" of Dr. B. E. Fernow, Dean of the Faculty of Forestry at Toronto University. "The whole of the conservation movement in the United States," it says, "started in one man, and he was neither Theodore Roosevelt, who made it a living issue, nor Gifford Pinchot, who pounded it across the nets at the famous tennis court at the White House. It all came from an enthusiast, a teacher, a man who came to this country to make a girl marry him, but stopped and wondered at the inglorious butchery of our trees. He had no more influence to make himself heard than any man who might be met with on Broadway, but he talked and he taught—principally he taught—until he got a few minutes attention and a meagre appropriation from Congress to start the work that was to save for the nation its greatest unclaimed wealth.

"No one in 1876 had ever heard of conservation or cared anything about it. The country was at the very beginning of the period of exploitation of its natural wealth. But in that year B. E. Fernow, a young German university student, who was thoroughly trained in all that Germany had learned about forestry in the past hundred years, had a mission that called him to America."

"Dr. Fernow," the "Times" goes on to say, "was made head of the new division of forestry at Washington, and set to work with a will, but he found only an abstract interest in forestry. He interested some young men, however, more deeply among them Gifford Pinchot. Pinchot returned from Germany a thoroughly equipped forester, in 1892, and a few years later was nominated by Fernow as member of the National Forestry Commission, which Fernow's efforts had created. The other members entered into the work with reasonable seriousness, but Pinchot

fairly threw himself into it, tramping and packing back and forth over most of the timbered country in the West. Consequently his reports were valuable."



PULP AND PAPER MARKETS.

Toronto, Feb. 5th, 1910.

Business in the paper trade, more particularly in news-print, book and writings, has been very brisk, and the difficulty has been to keep up with orders. Prices are very firm, although there have been no additional actual advances. Wrappings still remain easy, the demand not having improved. The January thaw came on time this year and helped the pulp manufacturers considerably, as they were able to go on grinding both in Canada and the Northern States. As a result a good many people looked for lower prices. These, however, were not forthcoming, as the demand for mechanical improved simultaneously with the better conditions of water-powers. Prices are quoted at \$16 to \$20 at the mill, according to location and other circumstances. Sulphite is about \$41, the importations continuing large from Sweden and tending to keep down prices.

* * *

Montreal, Feb. 3, 1910.

Among local pulp manufacturers there appears to be a slight division of opinion concerning the pulp situation. Some of them report an easier tone while others state that the situation continues firm. One manufacturer states that he is receiving \$19 and that others are getting as high as \$20. Others, however, state that this must be for very dry pulp and that they would be glad to sell at \$18. One manufacturer states that the market is lower, this month, by probably \$1 per ton and that a fair range would be from \$17 to \$19 f.o.b. mills. Sulphite pulp holds steady. Manufacturers make no complaint as to the demand for their product although some (Continued on Advertisement Page 50)

PRIME . . .

CANADIAN CHICOUTIMI,
P.Q., CANADA.

SPRUCE PULP

SUPPLIED BY THE

CHICOUTIMI
Pulp Co.

Production: About 100,000 tons.

SOLE AGENTS:

BECKER & CO.

LIMITED

64 CANNON ST., - LONDON.

(Continued from Page 54.)

state that they would be pleased to meet a more active demand. Apparently the demand is very fair without being altogether active.

Although heavy rains have fallen in the United States, there is still a strong demand for ground wood pulp for export over the border. The weather has turned colder, and as far as Canada is concerned there are indications of wintry weather and lower water powers from now until the spring sets in.

From all that can be learned, wrapping paper is in good demand. This is encouraging, not only because of the influence on the paper trade but also because it indicates a healthy condition of affairs throughout the entire list of industrial and commercial activities. A large amount of news is also going into consumption and, in fact, there is a very satisfactory demand for the various lines of paper manufactured in Canada. Under the circumstances, the paper trade generally, is active and the various manufacturers are apparently feeling well satisfied with the situation.

Following are the quotations:—
Pulp—

Mechanical pulp, f.o.b. mills
per ton \$17 to \$19
Sulphite pulp, f.o.b. mills, per
ton 38

Paper—

News, rolls, car lots, per 100
lbs. 2.25
News, sheets, car lots, per 100
lbs. \$2.50 to 2.75
Manilla, No. 1, per 100 lbs.
\$1.25, \$1.50, and 3.75
Manilla, No. 2, per 100 lbs.
\$1, \$1.25, and 3.50



BRITISH MARKETS.

Business is still dull for mechanical pulp, though shipments on contract are fairly large. Sulphite for farward delivery is in improved demand at firm prices.

In chemicals the demand is moderate. Ammonia alkali, 58 per cent., is quoted at £4 5s.; bleaching powder (soft wood), £4 2s. 6d. to £4 7s. 6d.; caustic soda, 77 per cent., £11 to £11 2s. 6d.; soda crystals, £2 17s. 6d.; recovered sulphur, £5 to £5 5s.; and salt cake, £2 2s. 6d.



RAG AND PAPER STOCK MARKET.

Dealers have exceedingly little to say respecting the market this month. From all that can be learned, however, the stocks everywhere are becoming light and the surplus which accumulated the past few years is being reduced rapidly. It is not expected that a very active demand will develop for any lines of paper stock of rags in the immediate future, but dealers look forward to considerable activity as the spring opens.

The market has been very steady for some months past and prices are now quoted at the same range as one month ago, as follows:—

	Per 100 lbs.
Smart Cuttings—	
White	\$4 50 to \$5 50
Unbleached Cottons ..	4 25 to 4 75
Light Print Cuttings..	3 00 to 3 50
Shoe Rag Cuttings—	
Bleached	4 00 to 4 50
Mixed white	3 00 to 3 50
Light print	2 75 to 3 00
Overall Cuttings—	
Blue	3 25 to 3 50
Brown	2 00 to 2 50
Paper Shavings—	
Hard white	2 00 to 2 25
Soft No. 1 white	1 50 to 1 75
Soft No. 2 white	1 25 to 1 30
Mixed shavings	0 55 to 0 60
Ledger stock	1 00 to 1 25
Printed book	0 90 to 1 00
Common waste	0 35 to 0 45
Roofing Stock—	
No. 1 satinettes	0 75 to 0 80
No. 2 satinettes	0 45 to 0 50
Sundries—	
Old bagging	0 60 to 0 65
Manilla rope	2 00 to 2 25
Mixed cotton rags	1 00 to 1 25

THE PULP ^{AND} PAPER MAGAZINE OF CANADA

Vol. 8.—No.3 .

TORONTO, MARCH, 1910.

\$1. A YEAR
SINGLE COPY 10c.

Pulp ^{and} Paper Magazine

A monthly magazine devoted to the interests of Canadian pulp and paper manufacturers and the paper trade.

Subscriptions: Canada and British Empire, \$1.00 per year. United States and Foreign, on account of postage \$1.50 per year.

The Pulp and Paper Magazine is published on the second Tuesday of each month. Changes of advertisements should be in the publishers' hands not later than the 1st of the month, and, where proofs are required four days earlier. Cuts should be sent by mail, not by express.

BIGGAR-WILSON, Ltd.

PUBLISHERS.

Offices, Confederation Life Building,
Toronto, Canada.

THE TARIFF DILEMMA.

We give every possible credit to United States statesmen for a desire to avoid a tariff war with Canada. This applies not only to those in high position at Washington, but to the genial representatives of expert tariffdom engaged at time of writing in trying at Ottawa to straighten out the tangle. But while recognizing this amiable desire, would it be out of order to ask, "Who is responsible for the tangle?" Surely, the American politicians, who, with their Aldrich-Payne bill, got away from the temper of their own people and tried to work a game of bluff, without possessing enough good cards to play it to a finish. Congressman and a few others who had taken the trouble to find out the spirit not only of their fellow countrymen but of Canadians, advised well, but their advice at the last was disregarded. And

now we have the spectacle of the great Republican party trembling in its shoes because of what may result from the breaking of its pledges to its own people, and because, unless the smoothest diplomacy be used, Canada, by keeping to its own course, may call the bluff and allow the American people to bring damage to themselves in their own sweet way.

Canadians can scarcely help being amused by the way in which United States tariff makers have created a boomerang. Yet there is no hard feeling. We have changed and grown a little. That is all. Time was when we did go to Washington and ask for favors. Perhaps the only favor the Americans showed us at that time was the rebuff which showed us eventually that the best path for Canada to take was her own. We learned the lesson. The United States hewed a road for itself, for its own interests purely, without regard for the good of Canada or of any other foreign nation. The rebuff taught Canada to look elsewhere for her markets; she found them, and probably better ones than would have been hers had she continued to look to the United States for her commercial salvation. For this we thank our neighbors. Nevertheless we remember the lesson.

Nowadays we think out what is the best course for Canada to pursue in tariff questions, **as in measures for the protection of our pulp-wood and other natural resources, having regard for our own best interest.** With the friendliest feeling in the world for the United States,

still we do not propose to ask them whether or not our legislation is likely to hurt their interests. We hope it will not do so. But— We have learned the lesson they taught us quite nicely.

It is absurd of the United States to claim, on the strength of the French treaty that we discriminate against her. Favors given by Canada to France are for a quid pro quo. The Franco-Canadian treaty was agreed to, if not ratified, long before the new United States tariff was thought of. On the other hand it may be argued with justice that for years the United States tariff has discriminated against Canada, perhaps not in the letter, but certainly in intent and fact. Otherwise there would not be the present vast disproportion between the import and export trades between the two countries. If the United States are so anxious for reciprocal trade relations with Canada, let them first reduce their tariff to the level of ours against them. Or let us first increase our own tariff so that it would be on a par with theirs against Canadian products. Then we would both be in a better position to talk about concessions.



CANADIAN WATER POWERS.

The campaign in favor of conservation of natural resources, which is now drawing strength from many factors all over the Dominion has created a strong body of opinion against the alienation of Canadian water powers. The Ontario and Minnesota Power Company has been making strong efforts to obtain the privilege of exporting the power generated by Albertan Falls on the Canadian side of the Rainy River to the United States side for the use of the industries at International Falls, a proposal which is being vigorously opposed by Fort Frances, Ont. The town claims that the Ontario and Minnesota Power Company only exists on paper and that it has sold out completely to the Minnesota and Ontario Power Company, incorporated in Maine. The suggestion has been made that the company should negotiate with Fort Frances

through the Hydro-Electric Commission, but the idea has not so far been acted upon by the company. The latter is at liberty to use on the Canadian side the full amount of power to which it is entitled and the government's position is that it should be required to do so or else sell at a reasonable price.

The Long Sault power near Cornwall is another bone of contention. The St. Lawrence Power Transmission Company, really an American concern, which proposes to dam the Long Sault rapids, seeks power to transmit and dispose of the power thus developed. The proposal is being opposed on the ground that it would tend to create a monopoly of electric power rights along the St. Lawrence and would interfere with any scheme for extending the Ontario Government's Hydro-Electric Power scheme. After a long discussion in committee, the clause permitting export of power was struck out, the opinion of the Hon. Clifford Sifton, chairman of the Commission of Conservation against the advisability of such carrying great weight. There can be no doubt that in the matter of the exportation of these two great natural resources of Canada, pulp-wood and electric energy from water power, a policy of holding to our own is the only safe course to pursue.



ABOLITION OF GERMAN SURTAX

It will be remembered that when the British preferential tariff was brought into force, it caused friction between this country and Germany. The final upshot was a species of tariff war between the two countries, Germany placing Canada on her maximum tariff list and Canada retaliating by establishment of a surtax or additional tax of 33 1/3 per cent. upon German goods. The real object of this surtax was not to provide additional protection against imports from Germany, so much as to furnish the Germans with a lesson that neither they nor any other foreign nation had any right to interfere in the domestic

relations existing between the various parts of the British Empire. The lesson had its effect and was fairly well learned. For some time past various commercial organizations in Germany have been bringing pressure to bear upon their government to induce the Canadian government to remove the restrictions which were proving so injurious to the trade passing between the two countries.

At length the negotiations have been crowned with success. The Dominion Government announces that the German surtax has been suspended, the

change taking place on the 1st inst., and that in return for this great concession, a considerable number of Canadian products are placed on Germany's conventional or ordinary schedule of duties. The agreement so far reached is a provisional one, and the question of a general commercial convention between Germany and Canada is deferred until a mutually convenient time.

The following is a list of Canadian products connected with the paper trade to be admitted into Germany at conventional tariff rates:—

Goods.	German Tariff No.	Unit of Quantity.	German Tariff.	
			General.	Convent'nal.
Paper and materials for—				
Semi-pulp (semi-paste for the manufacture of paper or cardboard soft or solid, whether bleached or dyed or mixed with mineral materials, glue, &c., or not:—				
Of wood, straw, esparto of other vegetable fibres—				
Of mechanical wood pulp	650	100 kilogs. 100 kilogs. 100 lbs.	3 marks 71.4 cts. 32.4 cts.	1.25 marks 29.7 cts. 13.5 cts.
Of chemical wood pulp (cellulose); pulp of straw, esparto of other fibres				
Millboard (pasteboard), moulded or pressed cardboard, also pasteboard formed by gluing together sheets of cardboard—	650	100 kilogs. 100 kilogs. 100 lbs.	3 marks 71.4 cts. 32.4 cts.	1.25 marks 29.7 cts. 13.5 cts.
Cardboard, glazed, (pressboard) and other highly smoothed cardboard, leatherboard and other fine cardboard, whether dyed in the paste or not; vulcanized fibre	65	100 kilogs. 100 kilogs. 100 lbs.	6 marks \$1.4; 64.8 cts.	
Chemical or mechanical wood pulp cardboard, even of steamed wood solidified by rolling (brown wood cardboard called leatherboard), strawboard, gray straw cardboard (Schrenzpappe), turf cardboard, any other coarse cardboard, not elsewhere enumerated, whether dyed in the pulp or not	651	100 kilogs. 100 kilogs. 100 lbs.	4 marks 95.2 cts. 43.2 cts.	1.5 marks 35.7 cts. 16.2 cts.
Cardboard, covered, saturated or coated with asphaltum, tar or similar materials, tubes of such cardboard, carton-pierre	651	100 kilogs. 100 kilogs. 100 lbs.	1.5 marks 35.7 cts. 16.2 cts.	

At first sight and taking the whole range of international trade it would appear that this agreement between the two countries, or rather the tearing down of the extra artificial barriers between them should prove of great mutual benefit. In a measure this may prove to be the case. It seems unfortunately none the less true that, taking the new agreement as a whole, Canada gets the short end of the stick. Of course it must be remembered that the Dominion placed the surtax on German goods purely as a war measure; and, to that extent, its removal may be looked on as merely a return to the ordinary rate of protection existing in each country and in relation to the other. Leaving this point out of consideration, however, it is to be pointed out that only on some Canadian products is the German tariff lowered and these are not, generally speaking, such as are likely to be responsible for any large trade development. In some kinds of grain and farm produce it is possible that trade may develop, though probably Germany, with her strong agrarian sentiment, will only import in time of scarcity; and even then what we gain in trade with Germany, we will lose in trade with other parts of Europe.

On mechanical and chemical wood pulps a material reduction in tariff duties is made, and there is some promise in this respect. We believe that at one time the Laurentide Paper Company and the Belgo-Canadian Company, made shipments of pulp to Germany, though these have now ceased. The general feeling in the trade here is that Germany will continue to obtain any needed extra supplies of groundwood from Sweden and other nearby sources of supply. At the same time it should not be forgotten that the forests are diminishing in size and value quite rapidly in Sweden, so that it is quite within the bounds of possibility that within a short while Canada may be called upon to supply part of Germany's needs in this respect, as it is in cases nearer home.

While in some branches of Canadian manufacturing industry the removal of the surtax is quite likely to result in considerable injury, notably in some lines of textiles, it cannot be said that the paper trade is feeling any particular anxiety. Several representative paper dealers interviewed by the Pulp & Paper Magazine, declared that so far as they can foresee they will be but little affected by the change of relationship between the two countries.

The ordinary grades of commercial paper, news, book, writing and wrapping, are supplied either by the domestic manufacturers or from England and the United States. What paper comes from Germany is chiefly of a fancy or special description; for example, parchment marbled papers, enameled, glazed and onion-surface papers, tissues, fancy papers for wrapping presentation boxes, etc., etc. Some of these lines, since the inauguration of the surtax, have been obtained from Austria or other countries, but no doubt the trade will return, either wholly or in part to Germany. In the latter country there has been quite a large development in these classes of goods and it is quite likely that some which have not so far made their appearance in this country, will now, under easier tariff conditions, be brought into Canada.

According to a quite general belief among paper dealers, the consumer will not benefit by the taking off of the extra duty, it being claimed that the German manufacturer is putting the extra amount into his own pocket. This may be true of the immediate present, but it is a matter that will probably equalize itself as time goes on. Another opinion stated by some is that on at least some lines of goods (though we believe paper is not among them) the German Government has been granting a bonus or bounty equivalent to the surtax charged by the Canadian Government, though this has since been denied.

Time will be the only ultimate judge of how the new commercial relationships between Canada and Germany will work out, but, speaking of the paper man's

point of view, it may be said to be on the whole distinctly favorable.

A reference to the trade statistics compiled by the Government will serve to show the trend of trade between Canada and Germany, and how it was affected by the imposition of the surtax. Also it should indicate in some degree what we may expect from the future.

In 1902 and the years just preceding the placing on of the extra duty the export of books and pamphlets from Canada to Germany was only a matter of a few hundred dollars per year. In wood pulp the export ranged from \$2 worth in 1898 to \$18,730 in 1901, down to none in 1902. Since the surtax was imposed, there was in 1909 a small exportation of paper to Germany (only \$296 worth however), while of books the value exported in recent years has ranged from \$280 to \$1,250.

Taking the other side of the story, Canada's imports from Germany, some larger figures are in evidence, both before and since the surtax was put on, though that war measure has certainly been responsible for considerable loss of trade, particularly when the great growth of trade prosperity and population are taken into consideration. In 1898 and 1902, respectively, the importation from Germany of books and pamphlets (dutiable) was \$17,694 and \$17,289, and (free) \$4,519, and \$6,286. Of paper and manufactures of same, imports (dutiable) in 1898 were \$66,596, and in 1902 \$65,167. From 1905 to 1909, books imported ranged in value from \$1,597 to \$4,590; labels \$12,167 to \$21,302; periodicals and pamphlets \$4,897 to \$10,488; paper and manufactures of, from \$61,084 to \$108,448, besides some goods imported free of duty.



—We call the attention of readers to the advertisement of Messrs. P. J. Riley & Company, of Lowell, Mass., on page 79 in this issue. They advertise for sale the equipment for a pulp and paper mill. In payment for the machinery they offer to take part interest in a mill. This proposition should appeal to some Canadian mill man.

PULP-WOOD EXPORT AND FORESTRY CONVENTION.

At the great forestry convention in Fredericton last month there were a few present who did not believe in restricting the exportation of Canada's pulp-wood. But of these we believe none will deny that had a resolution to that effect been brought to a standing vote it would have carried by an overwhelming majority. It was openly charged by more than one speaker that, in spite of the admittedly strong feeling in the association in favor of placing itself on record by a strong prohibition motion it has always been impossible, by reason of political and lumbering interests, to put such a resolution through. The mild resolution eventually produced by the committee is a case in point; and it indicates that the majority in such a committee does not always truly indicate a majority in the body it is supposed to represent. It must be admitted that Mr. Oak's paper (referred to on another page) was a very clever plea against prohibition. He made the most of his opportunity to raise the local fears of New Brunswickers as to what might happen if they cut off this source of immediate revenue. Senator Edward's *laissez-faire* policy of leaving things alone because "the average life of a pulp mill was only ten years (a low estimate this!) and because the American pulp mills would move over automatically to this country in ten or fifteen years in any case" did not convince the majority of those present, who felt that a body like the Canadian Forestry Association whose object of existence was to conserve our forest resources should surely make itself heard in no uncertain tone on this most important question of pulp-wood. Ten or fifteen years is sufficient time in which to make a pretty large hole in our pulp-wood resources if their cutting for the purpose of feeding foreign pulp mills is to be unrestricted. For safety sake it was felt that a better plan would be to stop the export meantime, which would allow us to gain an idea as to where we are at. It will be of not much use to do this

when those resources are gone. A rumor went the rounds of the convention that the proposed prohibition of pulp-wood export from Quebec would apply only to rough wood with the bark on, and that dressed wood would still be allowed to be shipped away. In fact, the correspondent of the Pulp and Paper Magazine in Fredericton was informed in no uncertain language that the embargo on Quebec wood would never be actually applied. It may be said, however, that all doubt on this point has since been removed by Premier Gouin's emphatically repeated statement that pulp-wood, whether crude or dressed or hand-peeled will not be permitted to be shipped from Crown lands in Quebec after September 1st next. Its export will not be allowed in any cruder form than pulp. These words of Sir

Lomer Gouin prove beyond all possible doubt and in spite of reports to the contrary that his views on this subject today are unchanged from when his first announcement was made a few months ago. Doubtless the reason for the circulation of these contrary reports as also for Hon. Mr. Oak's paper at the convention, was to influence the New Brunswick Government, which, as is well known, is contemplating the introduction of similar prohibitive measures. Premier Hazen and his colleagues will be well advised to take a far-sighted view of the problem and, noting what Ontario has already done and what Quebec is about to do, take such measures for conserving its natural resources as will redound to the benefit of New Brunswick and of the Dominion as a whole.



CANADIAN FORESTRY CONVENTION.

(From Special Correspondent of the Pulp and Paper Magazine).

Fredericton, N.B., Feb. 24, '10

Some people thought, because Fredericton was a comparatively small town and a long distance away from the big centres that therefore the Forestry convention was apt to be a rather small affair. We were agreeably disappointed however. Fredericton, it is true, possesses no great population, but they more than make up for that in hospitality and good cheer while the fact that so many of the residents of the district are intimately connected with the lumber and pulpwood industries causes the holding of a forestry convention right in their midst to take on a degree of importance not so noticeable when it is held in a city like Toronto or Montreal, to the majority of whose residents the question has but an academic interest. New Brunswickers certainly have a stake in their forests; what is more, they know it. A very large proportion of the provincial revenues have to be derived from that source; and while the total area covered by timber is perhaps not large

compared with that in some other provinces, it is still, comparatively speaking, a very large area compared with the total area of the province; moreover, its quality is high and one in which the people may justly take great pride. Is it any wonder then that all the citizens from the Governor and Premier down, took such an interest in the proceedings and displayed such a degree of kindness to visitors that will be remembered for many a year.

The unceasing efforts of Jas. Lawler, the courteous secretary of the Association, to cause the proceedings to pass without a hitch and to render them as valuable as possible to the visitors were amply seconded by prominent representatives of the Premier and city, including His Honor, Lieutenant Governor Tweedie, Premier Hazen, Surveyor General Gummer, Mayor Chestnut and many others. The result, as suggested above, was, in the minds of all present, the holding of the most successful convention in the annals of the Association.

Senator Edwards of Ottawa, vice-president of the Association, made an able, genial and universally popular chairman; though his remarks in opposition to the prohibition of pulpwood export were looked upon as an indication of his courage rather than of true representation of the body over which he nevertheless presided so fittingly.

Lieutenant-Governor Tweedie, in declaring the convention open referred to the great and growing interest of the people in forestry problems, the rapid decrease in standing timber having pressed the matter on their attention. In future, governments which expected to retain the confidence of the people would have to protect the timber. "Back to the Farm," and "Protect the Forest," were the two greatest problems of the day.

Premier Hazen and Honorable C. W. Robinson, leader of the opposition, spoke in a similar strain and commented on the fact that the forests supplied the greater part of New Brunswick's revenue.

Thos. Southworth, the president of the Association was, to the regret of all, unavoidably absent but his presidential address was read by the chairman. No matter was more important, he said, than fire protection. Some advance had been made in the protection of the forests held by the crown, and by the lumbermen, through the fire ranger system, but in the large areas in process of settlement there was no attempt to control the situation, and the fire laws now in force (referring particularly to Ontario) were practically useless. The provisions in that act regarding railway locomotives were impracticable, and consequently a dead letter. Settlers set fires for clearing purposes as they pleased, frequently with disastrous results. He suggested the appointment of a special committee to consider this question and to embody its ideas in concrete form.

Dr. C. C. Jones, chancellor of the University of New Brunswick, which has a course in Forestry, gave an ad-

dress instead of reading a paper. He contrasted the educational aspects of Forestry with regulative restrictions, and showed that education was essential in order to get the right kind of regulations. This was further developed by a brief review of what other countries were doing in the matter of education, notably Germany and France. He then showed how much educational work had been done in Canada by means of the Canadian Forestry Association and local associations, and now by the newly organized Commission of Conservation. What had been done in Canada in way of special departments of universities was as pointed out, courses having been established in New Brunswick and Toronto. This was a decidedly progressive move and one that meant much to Canada. At the same time he held that while men should be trained in this special work, they should still be men educated on broad lines.

Prof. Miller, head of the Forestry Department of the University of New Brunswick, spoke of the special facilities offered in New Brunswick for forestry students, inasmuch as they had natural forests close at hand. The nearness of these camps and the booms in the St. John River at Fredericton gave the school an advantage over those located far away from woods operations. The work of booming, driving, towing, and sawing for the export trade, and the subsidiary industries as the making of pulp, bark extracts, wood distillation, etc., were studied at first hand. He then discussed what attention should be given to cruising and estimating in a forestry course. He entirely disagreed with the statement that it was an insult to the profession for a lumber company to employ a forester as a cruiser and estimator.

F. C. Whitman, secretary of the Lumbermen's Association of Western Nova Scotia, held that the best people to carry out a policy of conservation under government supervision were the lumbermen. Conservation had become a com-

men, would, knowing the conditions, prove to be the best foresters. The Lumbermen's Association of Western commercial proposition and the men who owned the timber and practised lumbering in Nova Scotia and the Government had been endeavoring to come together to devise plans to perpetuate forest growth on both Crown Lands and private holdings. He emphasized the statement that large holders of timber in endeavoring to protect their property would, at the same time increase the value of small holdings and of farm wood lots. In the discussion which ensued, one of Mr. Whitman's remarks, viz., that the government should provide by insurance or otherwise a guarantee against fire in limits taken by leaseholders was favorably commented on by Ellwood Wilson of Grandmere, Que., and others. A limit holder had the right to expect to find the timber thereon intact when he should become ready to cut it.

W. B. Snowball, of Chatham, said that in N. B. lumbermen knew of the damage caused by fire. Every square mile of lumber country, whether owned by the government or individual, should be patrolled. Lumber operators, he thought, would be willing to contribute to the cost of such protection as in Quebec. The speaker also mentioned the resolution passed by the conservation of resources commission for the government to compell the Intercolonial railway to protect the country adjacent to the line from fire. This subject was also touched on by Premier Hazen who agreed that the I. C. R. or government should be made fully responsible.

Speaking of the exportation of pulpwood, Mr. Snowball said he hoped the convention would, by resolution, express its opinion. In the past there had been the fear of treading on somebody's toes, and the subject had not been touched.

Yesterday afternoon the great feature was an address by Hon. Clifford Sifton, recently appointed chairman of the Commission on Conservation which has been

drawing so much public attention. He denied emphatically the assertion made by some that the forestry movement had as yet accomplished little benefit. The evils of deforestation were not coming in the next generation. They had come. That fact was shown by the condition of parts of Ontario, where people were seeking means to regulate the volume of water in the streams. There is no ground for thinking the use of timber would not increase. The United States at the present time had only 22,000,000,000 feet of timber, just enough to last thirty years. Substitutes for wood might be invented, but there would still be a demand for wood. The people of the United States would come to Canada for timber. How long could Canada supply them? Just thirty years. He fully expected to see the time when the government of Canada would limit the annual timber cut. Ontario had already enacted a similar measure forbidding the exportation of manufactured timber. The Premier of Quebec had stated he was favorable to the prohibition of the exportation of pulpwood. He hoped to see the policy of the prohibition of the exportation of pulpwood in force throughout Canada. Ontario had saved millions by prohibiting the exportation of sawn logs. Mr. Sifton also strongly favored the creation of a forest reserve on the eastern slope of the Rockies.

Honorable J. P. Burchill, of Nelson, N.B., read a paper on Lumbering in Northern New Brunswick, giving some very interesting information about past history. Within the past few years, he said, "rossing" plants had been erected on the Miramichi for the purpose of preparing pulpwood for shipment to the United States. This resulted in a heavy drain on the forests for a very small amount of labor employed in Canada, no less than 31,500 cords being shipped from the Miramichi last year. He believed this country should receive all the benefits of its natural resources, and if it could be shown that this practice was stripping New Brunswick for the

benefit of the United States, then the duty of the administration was clear. His own view was that this shipment of raw material meant disaster to the forests of the province, without the people securing an adequate share. Mr. Burchill contrasted with this the paper mill recently established by James Beveridge on the Miramichi. This with a minimum drain on the forest and using up much of the offal of lumber mills employed a large body of men all the year around and seemed to him to be an ideal industry from a forestry standpoint.

Honorable Chas. E. Oak, of Bangor, Me., and Chatham, N.B., took up the question of prohibiting the export of pulpwood and opposed it. He said that only about 75 per cent. of New Brunswick's forests have been cut over because it was "thicket" growth producing a dense stand of small growth but not trees of sawlog size. Unless allowed to be cut over for pulpwood this was so much waste land. He contended that paper making did not by any means deforest the land, to which disastrous course he was utterly opposed. The advent of paper making had compelled the felling of trees with saws instead of axes, thereby saving at least $2\frac{1}{2}$ per cent. of the tree. Tops were taken out to a much smaller size, which lessened fire risk and added to stumpage revenue. A still greater saving was the use by the paper mill of undersized timber destroyed in making yards, roads and landings, and, also the broken, crooked, forked, seamy and defective trees that were useless at the sawmills. Careful tests made in the St. John Valley showed that only from 60 to 65 per cent. of the tree was utilized for lumber, whereas similar tests where wood was got out for paper making alone showed that 85 per cent. of the tree was utilized. As to the argument that the cost of robbing pulpwood was less than cutting deals, this is true but he contended that when the greater amount of material used out of each tree for pulpwood was

considered the balance would be on that side. If pulpwood should be prohibited from going out of the country in the expectation of paper mills being erected, then export of deals should be prohibited for the same reason. He argued that the establishment of large paper mills in New Brunswick was not feasible, because of the presence of but few water powers, in the province. As to grinding pulp by coal, the cost would be prohibitive, the price of coal alone being equal to at least half the value of the pulp when made. Referring to the splendid undeveloped water power at Grand Falls, there was sufficient wood in its vicinity to supply it for years, precluding the idea of bringing pulpwood to it by rail from other sections. With pulpwood export prohibited it would be necessary for New Brunswick to go on making deal, the lands getting constantly poorer. Deals could not be made from a 3 per cent. natural growth as pulpwood can. What then would supply the Province's revenue?

W. B. Snowball replied to Mr. Oak. He could not see that Mr. Oak had adduced a single argument for New Brunswickers to allow their greatest asset to be exported to assist in the employment of labor and maintenance of institutions in a foreign country. Mr. Oak had left behind a pulp and paper business and had left the International Pulp and Paper Company. It was astonishing that in a few short years he should become a good New Brunswicker. Before the Ways and Means Committee of the American Government was given evidence when the question of taking off the duty on paper was considered. Extracts showed that the International Co. employed 7,000 hands at the mills besides those in the woods, on which it was estimated 77,500 were dependent. Except for the wood operation in Canada, every dollar was expended in the United States. The evidence also stated: "We believe that under any conditions the free admission of paper would compel us to abandon many of our plants and

either drive us out of business or compel us to build mills in Canada." Mr. Oak had asked what New Brunswick would do if the pulp mills were closed. What did the province do before the International Pulp and Paper Company came? It was one of the greatest disasters to the Miramichi when the company came here. The Americans made money their god. They tried to make the most money in the shortest time without a reference to the welfare of the country or without looking to the future. What New Brunswick wanted was the manufacture of her raw material within her own borders. Mr. Snowball closed with an appeal for the manufacture of pulpwood in Canada and for an export duty on that wood.

Senator Edwards left the chair to make some remarks in support of Mr. Oak. If Canada and the provinces did their duty Canada could supply the United States and the world with pulpwood forever. He admitted that the American pulp mills must close on account of lack of raw material. The life of a mill is ten years. American mills would not be rebuilt. They would come to Canada automatically. Legislation would not bring them a day quicker. An export duty would put the price of pulp wood down and would ruin the small operators. It meant the most infamous form of protection and would benefit only a few Canadian pulp and paper manufacturers. It would not conserve the forest. The way to conserve forests would be to adopt rational protection.

J. M. Macoun strongly urged that a resolution against the export of pulp wood be put to the convention, which was vociferously supported by a very large majority of the delegates.

In the evening the visitors enjoyed a reception (and dancing) given by His Honor the Lieutenant-Governor and Mrs. Tweedie, the Honorable Premier and Mrs. Hazen and the members of the Executive Council.

A large part of Thursday was taken up by discussion of papers on the ques-

tion of protecting the forests against fire. Among these papers were "Forest Protection," by W. C. J. Hall, Superintendent of Forestry, Quebec; "Fire Laws and Fire Protection in New Hampshire," by W. R. Brown, Secretary New Hampshire Forestry Commission; "How Best to deal with Forest Fires," by H. W. Woods, M.P.P. The many valuable suggestions made not only in these papers but in the course of the very interesting discussion which followed their reading made most of those present feel that their time had been well spent in coming to the convention.

Other good papers were by E. T. Carbonel, of P. E. I., Prof. E. J. Zavitz, of Guelph, Jos. Feinbrook, Chatham, W. H. Berry, Superintendent of N. B. Sca- lers.

Among the resolutions passed were the following:-

"Resolved, that the association endorse the project set forth in report of the parliamentary committee of the house of commons recommending that the available forest land upon the eastern slope of the Rocky Mountains be constituted into a permanent forest reserve."

"Resolved, that in the opinion of this forestry convention the Dominion Government and the various provinces should preserve to Canada all the water powers within their boundaries, especially those in waters bordering on the neighboring republic."

"Resolved, that in the opinion of this forestry convention the dominion government should pass more stringent laws to compel railway companies to take more precautions to prevent forest fires along the line of their railways, and also that the Intercolonial Railway and the Prince Edward Island Railway should be placed in the same position as other railways, and that these railways should have to conform to the fire laws of the several provinces through which they pass, and that the Intercolonial Railway and Prince Edward Island Railway should carry the fire wardens free of

charge and drop them at any point where they be required.

"Resolved, that this convention urge upon the dominion government and the governments of the several provinces the necessity of reserving the timber lands at the headwaters of all rivers and streams so as to maintain a regular flow of water.

"Resolved, upon the proposal of G. C. Piche, that it be recommended that the executive association consider:

(1.) The establishment in each province of separate branches to look after local problems.

(2.) The appointment of a committee of five members to study possibility of having a universal log rule for the whole dominion.

(3.) The publishing of the Forestry Journal monthly instead of quarterly and also the use of larger type.

"Resolved, that this convention recommend to the executive committee the advisability of appointing a committee of five to consider the fire laws of the several provinces, and suggest legislation that in their opinion would more effectively prevent and control forest fires."

"Resolved, that in the opinion of the Canadian Forestry Convention the time had arrived when, in the interest of the conservation of our forests, the federal and provincial governments should limit the cutting of lumber or pulpwood on crown lands."



PULP AND PAPER NEWS

The E. B. Eddy Company is installing some new machines, also adding a drier.

* * *

L. P. Bouvier's envelope factory in Toronto has been severely damaged by fire.

* * *

The Art Wall Paper Company's premises in Toronto were damaged by fire to the extent of \$30,000.

* * *

According to a recent issue of the London Gazette, the Western Pulp and Paper Company, Ltd., has been dissolved.

* * *

Mr. W. P. Ryrie, of the Ryrie Paper Company, Toronto, is on a visit to England, but is expected home within a few days.

* * *

The Hinde Dauch Company, of Sandusky, Ohio, have opened a branch box board factory in Toronto, under the management of Mr. Moore.

* * *

The Dominion Department of Trade and Commerce has received information to the effect that Egypt affords a good

market for Canadian paper and cardboard.

* * *

Edward Rigley, an employee in the Miramichi Pulp and Paper Mill at Chatham, Ont., was severely cut on the head while arranging a belt.

* * *

The James McLaren Company, Buckingham, Que., are continuing operations all this winter, without suspending as usual. All necessary improvements were made last season.

* * *

The National Paper Mills, Ltd., Vancouver, has been incorporated with a capital of \$250,000 to manufacture pulp, paper, and other wood products and paper bags, paper boxes and envelopes.

* * *

The St. John Pulp and Paper Company's mill at Mispic, N.B., has shut down for an indefinite period. There is a fairly large quantity of pulp on hand, for which it is difficult to obtain warehouse accommodation.

* * *

The Sackville, N.B., Paper Box Factory Company held its annual meeting a

few days ago. Satisfactory reports were presented and a dividend declared. Dr. Secord was re-elected president and C. C. Avard, secretary.

* * *

The Laurentide Pulp and Paper Company claims \$1,216 damages from McDonald & O'Brien, of Three Rivers, for trees cut in trespass on their limits. Defendants offered to pay at rate of \$4 per thousand for the wood taken, but this was not acceptable.

* * *

The Arundel Pulp Company, Ottawa, has bought the Range River power at Huderdeau, Que., for pulp mill purposes. About 2,500 horse-power can be obtained, and the company already possess sufficient limits in the immediate neighborhood to supply a mill.

* * *

It is reported from Ottawa that the Papineauville Lumber Company has purchased from the Bryson estate of the County of Pontiac, its central limits at Fort Coulonge. The property has been owned by the Bryson estate for half a century past and contains much valuable timber. The new owners will bring the timber to Papineauville.

* * *

The Gambo Lumber Company has just completed the purchase of a 150 horse power steam plant from the Robb Engineering Company of Amherst, N.S., being the motive power for their new mill in course of erection near Gambo, Newfoundland. The company has also purchased a gunshot, steam feed, circular mill from the F. Long Manufacturing Company, Orillia, Ont.

* * *

The opinion in the purchase of the Imperial Paper Mills was not taken up last month, as had been hoped, though Recorder Clarkson is understood to have received other inquiries concerning the property. In the meantime the people of the town of Sturgeon Falls and district are asking the Ontario Government to bring pressure to bear on the Recorder to induce him either to increase operations at the mill or to bring the mills to a

speedy sale, as the interests of many are at stake.

* * *

The Chicoutimi Pulp Company are now completing their two mechanical pulp mills at Chicoutimi, Que., and they are expected to be ready for operation by May 1st. Their production will then be 170 tons per 24 hours dry weight or 50 tons more than at present. The rebuilding and enlargement of the Ouiatchouan Falls mill is practically completed, the capacity of this mill being 60 tons dry weight of mechanical pulp every 24 hours. The manager states there is no intention of building a sulphite mill.

* * *

The Sault au Recollet paper mills, which manufacture various lines of building and roofing paper, are closed down temporarily in order to permit of the enlargement of the mills and additions to the plant. The management anticipate an increased demand for their lines in the near future, and in order to provide for this they are having a number of driers added to the paper machine as well as several screens. There is every indication, at present, that the consumption of building and roofing paper will be good during the coming season.

* * *

The Woking Cask Company has, it is stated, just acquired the timber limits and other property of the Great Northern Lumber Company of Stouffville, Quebec. The Woking Cask Company is an English concern. By this purchase it has become possessor of several thousand acres of valuable timber limits and large modern up-to-date mills. It is not known for what purpose the purchase has been made, but it is stated that the company will proceed with its operations at once. The officers of the Great Northern Lumber Company are in the Guardian Building, Montreal.

* * *

The St. Laurence Paper Company, Mills-Roches, Ont., held their annual meeting in Kalamazoo, Mich., a large number of those interested in the company residing at that place. Report-

read showed that the company's business and prospects were very satisfactory. Capital stock was increased from \$150,000 to \$300,000, with a view to making several extensions to the plant, including the addition of a new 130 unit Fourdrinier. The following officers were elected: President, L. H. Weldon; vice-president, W. M. Loveland; secretary-treasurer and general manager, S. F. Duncan; other directors, Charles B. Hays and James Grant. The extensions will be carried on under superintendence of D. J. Albertson, paper mill architect and engineer.

* * *

Another suit is being brought in connection with the Imperial Paper Mills. The bank is suing William Parsons, Marcellis C. Parsons and Howard Whitmore, of Parsons Bros., paper merchants and exporters, New York, for \$15,028 for alleged breach of contract. The Imperial Paper Mills conducted business at Sturgeon Falls up till October 27, 1906, but the company's stock was afterwards placed in receiver's hands. The receiver is said to have made a shipment of paper to the defendants under a contract between the two firms. Discovering that he had no legal right to carry out the transaction, the receiver refused to make further shipments to New York. Then the defendants, claiming breach of contract, withheld the amount alleged to be due. The Sovereign Bank became plaintiff because the receiver assigned to it the Imperial Paper Mills stock.

* * *

The British Canadian Wood Pulp and Paper Company held its second annual meeting in Vancouver. The report submitted showed the book value of the assets of the company to be \$566,975.99, the real value of the holdings being estimated at approximately \$855,000. A report of the mechanical equipment of the Port Mellon plant showed it to be in first-class shape, with the exception of the Fourdrinier machine, which is too small, and will have to be replaced. Greely Koltz, the fiscal agent of the company, recommended an immediate issue of debentures to provide for the develop-

ment of water power, the erection of an eight-grinder pulp mill, and the installation of additional paper machines, with a capacity of 35 to 40 tons of newsprint per day. The directorate is Thomas Hooper, J. C. Newbury, and Frank Scutt of Victoria; S. G. Faulkner, J. Duff Stuart, W. Innes Paterson, Captain G. H. French, J. McPhee, Captain H. A. Mellon, E. F. Allen, Norman Caple, W. Brown, A. S. Brake, Greely Koltz.

* * *

The News Pulp and Paper Company, which was incorporated last fall under Dominion charter, with all the rights pertaining to the manufacture of pulp and paper and allied privileges, has taken over the St. Raymond Pulp and Paper Company, which went into liquidation in 1909. The mills of the company are situated at St. Raymond, below Quebec. A statement issued at the time of the assignment indicated the advisability of certain extensions in order that the business might become remunerative. The pulp mill, as operated by the St. Raymond Company, has been actively occupied all winter, the water being high and the conditions in every way satisfactory. The News Pulp and Paper Company is now busy installing additional machinery for the manufacture of pulp, in order, doubtless, to provide against any shortage of water. The mill, it is expected, will start up about the middle of next month. Among the machinery ordered are two units of turbines from William Kennedy & Sons, Owen Sound, wet presses and screens from Waterous Engine Company, Brantford, and four pulp grinders from Dix Foundry and Machine Company, Glen Falls, N.Y.



—The office building of A. Klipstein & Company, dealers in aniline dyes, etc., No. 122 Pearl Street, New York, was recently, we regret to learn, destroyed by fire. The firm however, speedily made arrangements for temporary offices at Beaver Building, 120 Pearl Street, and all orders and enquiries are being attended to without delay.

MONTREAL PULP AND PAPER NEWS.

(Special to Pulp and Paper Magazine.)

Montreal, March 5th, 1910.

Newfoundland seems to be attracting increased attention from a lumbering and pulp standpoint, at any rate in the City of Montreal.

Newfoundland Pulp Companies.

The Gambo Lumber Company, Ltd., which was organized upwards of a year ago, held its first annual meeting at its head offices in the Board of Trade Building, in the month of February, and the statements presented showed satisfactory results.

When the Gambo Lumber Company started business somewhat over a year ago, they took in one timber limit, at Gambo, on the line of the Reid-Newfoundland Railway at Bonavista Bay, on the east of Newfoundland. The operations being deemed encouraging by the directors, it was decided to purchase another limit in the same vicinity. The purchase of this limit was confirmed at the annual meeting referred to above, and the directors were authorized to proceed to erect a mill and completely equip it with machinery capable of taking care of any cut which the company would probably require to take out in the next half dozen years. The erection of a pulp mill was also discussed.

The shareholders authorized an increase in the capital of the company to \$100,000 from the previous \$60,000, for the purpose of providing funds for the purchase of the new limit. G. A. Scott, of the Argenteuil Lumber Company, who was mainly interested in the organization of the company, was re-elected president; J. E. Seale, also of the Argenteuil Lumber Company was re-elected vice-president; F. M. Nicholson, wholesale lumber dealer of Montreal, secretary; William Little and Leonard Little were re-elected directors, and there were added to the board J. R. Walker, of J. R. Walker & Company, and T. C. Allum.

Garnet M. Strong, of Cambria, Que., is manager of the company.

Canadian Wood Pulp Association Meeting.

A meeting of the members of the Canadian Wood Pulp Association was held on the 18th ult. at the Windsor Hotel.

The mills represented at the meeting produce upwards of seventy per cent. of exported mechanical wood pulp, hence the deliberations of the meeting bear particular importance in this industry.

A subject which brought forth general discussion was the matter of discrimination in freight rates on wood pulp and rossed or peeled pulp-wood shipped from Canada, it being the contention that the same rate should apply in each case, as the product unquestionably comes within the schedule as raw material. It is expected that representations will be made shortly to the Board of Railway Commissioners to have this matter adjusted forthwith.

New Brunswick Lumber Cut.

A representative of this magazine returned recently from a trip to New Brunswick, states that the situation there as respects the cut for the present season has shown considerable improvement during the past month. Previously, the snows were very light, and many of the lumbermen were returning from the woods in a discouraged frame of mind. Subsequently, the snows have been quite heavy, and the situation has altered greatly. Nevertheless, Mr. W. B. Snowball estimates the lumber cut on the Miramichi River this winter at 50,000,000 feet, or 25 per cent. less than that of last year. That is a reduction in cut in several parts of the province, due to wet weather and light snowfalls.

On the other hand, the cut on the Restigouche is said to be 25% greater than last year, the belief being that it will reach 100,000,000 feet. Reports from the northern portion of the province state that there is now lots of snow in the woods.

New Brunswick Railway Company.

The New Brunswick Railway Company, of which Mr. Robert Meighen, of Montreal, is president, has secured the services of Hon. Charles Oak, as manager of the timber lands in the Province of Quebec. Hon. Charles Oak, of Bangor, Maine, has been prominently identified with the lumber business of New England for the past thirty years. He will sever his connection with the International Paper Company, of New York, and become manager of timber lands for the New Brunswick Railway Company, to which one million acres were granted some years ago for railway subsidies. Mr. Oak was forest commissioner and land agent of Maine from 1892 to 1901 and president and manager of the American Realty Company, owning 60,000 acres in Maine, and the Miramichi Lumber Company owning 600,000 acres in New Brunswick.

**PULP AND PAPER MARKETS**

Toronto, March 5, 1910.

Speaking generally, all the Canadian paper mills have been busy. The demand for news print has been good, but owing to the starting up of one or two new mills anxious to get a slice of the trade, there has been a certain measure of price cutting which has produced an easing of the market. We have heard of cases during the month where a Quebec mill delivered news print for use of newspapers in this city as low as 2c. It is not believed by the trade, however, that this disposition to cut prices will grow to any extent, as the prospects for business are very good. A feature of the book paper trade, particularly in the higher grades is that several representatives of English firms have been on a visit to Canada and have pushed energetically for business. They are helped by two factors, the general rise of prices in the United States and the preferential tariff which favors them to the extent of 16½ per cent. as compared with 25 per cent. which is the duty which the American exporter has to pay. The

Canadian book mills have been particularly full up with orders; moreover, they have been hampered by troubles with ice, etc., which has been unfortunate in view of the fact that the demand in the country, owing to briskness in all lines of business has been particularly heavy. One unsatisfactory feature of the paper trade has been the persistent dullness of wrappings. Prices of these goods have never properly recovered since the depression of two years ago, and the demand seems to have been largely eaten into by the growing popularity of Kraft papers, which are not only made in Canada but imported to a considerable extent. Meetings of the wrapping manufacturers have been held with a view to placing the business on a more satisfactory basis, but so far as we understand not much has been actually accomplished. Meantime stocks are growing larger, and quotations seem to show no strong inclination to become firmer.

The demand for ground wood pulp has been fair, and prices during a large part of the past month were steady owing to the cold weather. Now a thaw has come, however, no particular complaint is heard as to prices. Shipments have been fairly steady to the United States. The prevailing price for mechanical is about \$16 or \$17 at the mill. Sulphite is \$30 to \$41, being influenced by considerable importations into the United States from Sweden.

* * *

Montreal, March 4, 1910.

During the past month there has been developing an easier feeling in the pulp markets. This is due to the somewhat lighter demand from the United States where the recent rains and the soft weather have added volume to the streams and placed the pulp men in a better position to supply the trade. Prices have probably declined from \$1 to \$2 per ton, although a few sanguine spirits say that former prices still prevail. As a matter of fact, pulp has been sold as low as \$16, at the mill, although it is just possible that this may not be a fair figure as a quotation. The prob-

ability is that \$17 per ton is being obtained. We give a range between these two prices.

The paper trade is very fair and dealers are looking forward to considerable activity during the coming season. Some firms report that wrapping papers are not so active as was hoped they would be, while others state that they are meeting an excellent and satisfactory demand.

The uncertainty of the tariff situation between Canada and the United States has been productive of some considerable dulness and until the question of duties between the two countries has been settled trade will continue slow.

Prices are as follows:—

Pulp—

per ton	16 to \$17
Sulphite pulp, f.o.b mills, per ton	38

Paper—

News, rolls, car lots, per 100 lbs.	2.25
News, sheets, car lots, per 100 lbs.	\$2.50 to 2.75
Manilla, No. 1, per 100 lbs. \$1.25, \$1.50, and	3.75
Manilla, No. 2, per 100 lbs. \$1, \$1.25, and	3.50



BRITISH MARKETS

The world's Paper Trade Review report show that in mechanical wood pulp business is quiet and prices weak, due to over production, which in chemical pulps the tone of the market is towards improvement and prices show more firmness.

Home and foreign rags are in good demand.

Trade in chemicals is steady.



RAG AND PAPER STOCK MARKET.

There has been a very fair market for rag and paper stock of all kinds of late,

but alterations in prices have been but slight. On the whole, the market is firm and dealers have been asking and receiving fractionally more for most lines, although the difference is too insignificant to be quotable. Demand for all classes of paper-making material is good and manufacturers of many lines of goods in which waste material is a considerable factor, are finding their capacity none too large to take care of the present demand, while it would seem that very shortly many of them may require to make extensions to their plants. The supply of raw material is becoming limited and if the consumption keeps up there is a feeling that a shortage may develop before the spring has advanced very far.

The mills in the United States are buying pretty freely but some of them report that the consumption of paper has not been so large as hoped, the result being that a decline in price has taken place in some instances.

Quotations are as follows:—

	Per 100 lbs.
Shirt Cuttings—	
White	\$4 50 to \$5 50
Unbleached Cottons ..	4 25 to 4 75
Light Print Cuttings..	3 00 to 3 50
Shoe Rag Cuttings—	
Bleached	4 00 to 4 50
Mixed white	3 00 to 3 50
Light print	2 75 to 3 00
Overall Cuttings—	
Blue	3 25 to 3 50
Brown	2 00 to 2 50
Paper Shavings—	
Hard white	2 00 to 2 25
Soft No. 1 white	1 50 to 1 75
Soft No. 2 white	1 25 to 1 30
Mixed shavings	0 55 to 0 60
Ledger stock	1 00 to 1 25
Printed book	0 90 to 1 00
Common waste	0 35 to 0 45
Roofing Stock—	
No. 1 satinettes	0 75 to 0 80
No. 2 satinettes	0 45 to 0 50
Sundries—	
Old bagging	0 60 to 0 65
Manilla rope	2 00 to 2 25
Mixed cotton rags	1 00 to 1 25

PULPWOOD PROHIBITION AND TARIFF WAR.

Editor, Pulp and Paper Magazine:

Sir,—While skirmishing is at the present moment going on between the negotiants of the United States Government and members of the Canadian Government on tariff relations, it may be well for Canadians to ask themselves what would happen if Canada prohibited the export of pulp-wood (as Austria, Norway, Sweden and Newfoundland have already done) and if in retaliation the United States imposed on Canada its maximum tariff or else prohibited the export to Canada of certain materials which are as needful to Canadian industries as pulp-wood is to the industries of the United States.

Suppose then that the Canadian Government issues a proclamation that the export of pulp-wood or other unmanufactured timber shall be prohibited. The United States cannot retaliate in kind at once for its constitution forbids the prohibition of exports. Congress could amend its constitution but this would have to be by consent of the various States, and apart from the great veneration of the American people for their written constitution, the interests of the solid south would, for example, be strongly against limiting the export of raw cotton. Again, if the ban on exports of cotton were applied only to Canada this country could import its cotton by way of England or Newfoundland, and so we would only have to pay the extra freight. There is only one other raw material over which the United States holds a present monopoly of trade in some of our provinces, and that is coal. Here again the operators of coal mines, many of which are controlled, and some entirely owned, by the railway corporations, so powerful in Congress, would fight strenuously against such a restriction of their most profitable market. If such a law were imposed Canada could get via Newfoundland what United States coal Nova Scotia and British Columbia could not supply.

As to lumber it is true that if a non-

intercourse act were applied to lumber many of our wood-working industries would be handicapped in using such woods as southern pine and oak, but here again if Canadian lumber were forbidden to the United States the lumber trade and wood-working industries there would be harder hit than ours.

If the retaliation policy were carried to products and manufactures in general the United States would fare worse than Canada would, for while Canada exported to the United States in 1909 \$92,604,357 worth of goods, the United States exported to Canada \$180,026,550 in the same year. In such a conflict the United States would lose \$2 to Canada's \$1.

Therefore, unless the United States takes pleasure in cutting off its own nose to spite its face effective retaliation is not to be feared, however much it may be threatened.

But here is the practical problem: the United States is now taking anxious thought to conserve, or rather to restore its forest resources and its crippled water powers, and can the people of that country, practical as they are, blame Canadians for doing the same thing with our resources, especially when we see how vitally they are connected with our water powers and how essential those powers are to carry on the industries in a country where coal areas are not evenly distributed.

Prohibiting the export of pulp-wood will lead to a rapid development of the pulp and paper industries of Canada it is true, but this after all, is not the chief end of such a measure, but only an incident, favorable to Canada, in the maintenance of resources which once destroyed would bring lasting injury to every field of industry and agriculture in the country. Hence, reasonable Americans could not blame us for doing for our own preservation what under like circumstances they would feel it their duty to do by their own country.

C. E. Bristol.

OUR OLDEST PULP MANUFACTURER.

Editor, Pulp and Paper Magazine:

Sir,—Our oldest pulp manufacturer is undoubtedly the beaver. From the remotest times he has been arduously engaged in deriving all the material of his existence from a source man has only recently given any attention to. His food is white birch pulp, poplar, lily root, and kindred edible roots. Potatoes, mangels, turnips, cabbage and lettuce are all dainties to his palate. He laths his home and reinforces his dam with chosen twigs, being the first in textile art as well. At every stage of his work he leaves it fit to endure the strain of a freshet; and when complete these dams endure for many years after the builders have perished. In felling trees he is expert, cutting all round, yet landing exactly where needed. He rafts them down to his dam and plants them, one end in the mud and the other just below the icy roof for winter food. He assumes family cares when three years experience has ripened his judgment and social faculties; begins with twins and at full maturity the annual result is often eight to ten at a birth. Thus by geometrical progression one pair of building beavers would increase to 100,000 in twenty years and be worth at least one million dollars. In no line of stock raising are equal opportunities for wealth. The first breeders will be able to sell at 50 to 100 dollars per pair to others wishing to engage in the business; with a practical monopoly and a sure demand there need be little fear of failure to one who understands their tastes and habits. The Hudson Bay Company derive a large revenue from the sale of beaver castors (a peculiar gland found in both sexes) to the learned men of India, Thibet, and China; they use them as a tonic to promote mental vigor and ward off the evil of senility. As the trade demand continues constant for all that can be procured there must be solid reasons for the idea of these learned

men using the medicine for centuries. As they (beavers) would thrive best in swampy lands and ponds not desirable for agricultural use, they would be very useful in utilizing the waste places of both Old, New, and Newest Ontario; and at little cost add materially to our potential wealth and prosperity.

H. S. S.



WATERPOWER IN SUDBURY DISTRICT

Editor Pulp & Paper Magazine,

Sir,—In reading your valuable journal we get a high ideal of the value of falling water as one of nature's greatest gifts. Perhaps in no other form is power so available for human requirements; and it needs only portability to render unlimited service to our race. But being the most stable of powers, we must needs harness it where we find it, and lead it in electric bonds to where we desire to use it. Thus, the location of a cascade often determines the site of a town, and regulates its value. I was forcibly impressed with this view when rustivating in East Algoma, about 24 miles northwest of Sudbury, on the main line of the C.P.R. to Port Arthur. Curving nearly north I was facing a plateau about 170 feet high through which flowed a river of considerable size fed by a lake 60 miles in length by 3 to 10 miles wide, at a distance of about 20 miles. It fell 150 feet in three graceful cascades in a length of 20 chains, and at its foot was a cliff vertical for about 4 or 5 stories of an ordinary building. To the brow of this cliff a switch could easily run down to the railway and do business with the top of a mill resting against it; while a sandy plain above the fall overlooks about four townships, including Vermillion Lake and Chelmsford. What a site for an industrial town! Power, prospect, sanitary conditions, and transport for men and material unite in one

charming whole, needing only capital and enterprise to put all into service. Raw material, in pulpwood, timber, and minerals, surround it, while Manitoba cereals are borne past it daily, as well as at Kenora; easily transmitted into flour and its adjuncts—thence borne on to feed our artisans while producing other goods. Less than a mile southwest lies Wendigo (or Windy) Lake, with an area of 6,000 acres, abounding in trout and other fish, affording good sailing and bathing to holiday makers.

The question arises, "Why do such opportunities lie dormant so long in our country though so eagerly sought after by our neighbors on the south?"

Canada is awaking to her birthright, and cannot let the gifts of Providence lie idle with impunity. This is only one case in many known to the writer—can you suggest a remedy?

Homo Senex Sylvarum.

Note.—It is only a question of a little time, and of getting capital in touch with such opportunities as our correspondent describes to develop the resources of this district and the many other unpeopled regions of Canada. We shall be glad to give our correspondent's address to anyone interested in this prospect.—Ed.



NATIONAL PAPER TRADE ASSOCIATION.

The sixth annual convention of the above association took place at the Waldorf-Astoria, New York, at the same time as that of the American Pulp and Paper Association. The secretary's report showed that the association is still flourishing. The election of officers resulted as follows: President, E. U. Kimbark; 1st vice-president, John Leslie; 2nd vice-president, E. E. Wright; treasurer, R. P. Andrews; secretary, Thomas F. Smith. The new president, after out-

lining the objects of the association, dwelt upon the necessity of knowing the cost of handling each grade of paper. Each line of paper handled should pay a profit over and above the percentage of cost of doing business, and the burden of profit should not be borne, as it is at present, by perhaps three-fifths of the lines we handle. This can be accomplished by a better knowledge on the part of every dealer as to what is the reasonable cost of handling the various grades and kinds of stock. We ought to know the average cost of handling and selling twines and wrapping papers, book papers, writing paper, cardboards, cover papers, envelopes, etc. It is evident that some of them cost more to handle and sell than others—they will vary in storage cost and expense of handling, as well as in the rapidity of turnover.



PULP PAPER AND POWER.

Under the above title the well-known industrial engineering firm of Joseph H. Wallace & Company, New York and London, have published a magnificently gotten up book showing representative installations selected from over fifty paper, pulp and power plants, the engineering for which was done entirely by their own organization. It may be stated that the firm of Joseph H. Wallace & Company was organized especially to meet the demand on the part of the bankers and investors in industrial securities for unbiased reports and appraisals of such properties. They have recently organized a department of tests which undertakes complete tests of steam and hydraulic power plants. The "industrial engineering" problem, the factor which is becoming yearly more important in the world of finance and industry receives the most expert attention at their hands. Among the representative plants illustrated and described in this work of art—it may truly be described as an edition de lux—is the Spanish River Linen Pulp & Paper Company's mills at Espanola, Ont.

AMERICAN PAPER AND PULP ASSOCIATION.

The 23rd annual meeting and banquet of the American Paper and Pulp Association took place in New York on the 10th ult.

In his presidential address, A. C. Hastings, spoke of the business conditions which had prevailed during the past year, which had shown material improvement. In 1880, he said, the pulp and paper industry stood eleventh on the list of American industries, while to-day it is probably the fourteenth, so that it may be said to have held its position fairly well except for the enormous growth in special lines. Speaking of the sulphite industry, he said its history showed the need of higher protection, nearly 50 per cent. of the total requirements being supplied from foreign countries at prices below cost of production in the United States. If protection had been denied, nearly all the sulphite mills in the country would have to close down. He showed the wonderful growth in importance of the paper industry in the following statement:

"The tremendous capacity of this country of ours to absorb anything of commercial value should lead the manufacturers of paper to think. Thirty years ago the per capita use of paper in this country was about 15 pounds to each man, woman and child. To-day the population has practically doubled and the per capita use of paper is about 100 pounds, so that you have the two constantly increasing factors, numbers and increased consumption per capita. In 1880 the annual production of all kinds of paper was about 2,000,000 tons. In 1910 the estimated capacity is about 13,000,000 tons of paper. Thirty years ago the amount of money each person had in the United States was about \$21.50 and to-day it is about \$40, and we as legitimate manufacturers are entitled to our share of that increase."

Referring to the importance of paper manufacturers having a better system of cost keeping than many actually do have, he said, "no man can hope to succeed in any business unless he gets

more for what he sells than it costs him to produce, and yet I know that there are manufacturers to-day who are fooling themselves in this respect. How many allow for depreciation? In 1880 Louisville, Ky., was the fifth city in the United States as a paper manufacturing city. To-day there is no paper mill in the State of Kentucky. Who paid for the depreciation on those plants?"

Louis Chable, secretary and treasurer, who, to the regret of all, has found it necessary to resign office owing to the press of other business, stated that the Association to-day counts 199 members, as against 164 members last year. Commenting on the danger of being deceived by "ideal" conditions of manufacturing, he said:

"Let those also who believe that the possession of a tract of woodland and a more or less valuable water power is sufficient to enable the making of a fortune in paper manufacturing watch our statistics; let them find out that the ideal conditions of paper making always exploited to the fullest extent by the promoter, are not necessarily the actual conditions of manufacturing; let them note from our statistical information the number of days mills have to remain idle on account of either low water or high water or damage to machinery; and that it is not safe to multiply the maximum daily capacity by 310 and the profit on a ton of paper under ideal conditions by the number of tons of such capacity to produce returns which are to provide interest on the debt, depreciation of the plant and a moderate amount of dividend for stock. We are all too prone to base our calculations on such ideal conditions, thus causing us to sell recklessly paper at a price based on \$16 or \$18 pulp and have to go into the market and pay \$28 and \$29 for it."

In the report of the News Division, one feature of cost was dwelt upon to the effect that depreciation consisted not only in wear and tear, but that its principal cause was the evolution in methods

and machinery, which in order to keep in competitive position forced manufacturers to throw machinery only partly worn into the scrap heap and replace it with the most improved equipment from time to time.

The report of the Book Division referred to the proposal of the United States Government to impose higher postal rates on magazines, which, of course, would act as a sort of tax on book papers.

"The Government, it said, has allowed and made possible, by the prevailing postal rates, the immense development of a magazine business, and the steady growth in magazine circulation has produced a relative growth in the affiliated industries. Book paper plants, in order to make a product commensurate with the consumers' demands, have increased their capacity in the last ten years about 91 per cent., and in the last twenty years about 325 per cent. At this stage of development it must seem to all fair minded Americans unjust to behead the publications for the sake of reducing a deficit which, speaking conservatively, is largely due to other causes."

A. D. Little, the official chemist, in reviewing the possibilities of several sources of paper stock, such as bamboos, cotton hulls, flax straw, corn stalks, bagasse, peat, etc., many of which he considers beyond the range of probabilities, though he pointed out the advisability of systematically investigating all promising raw materials, quoted the following as tests to be applied to fibrous materials to determine if they are suitable for paper making:—

1. It must have no value for any other economic purpose.
2. It must be capable of natural reproduction, and not liable to exhaustion under a reasonable system of cropping.
3. It must mature at periods not exceeding three years.
4. It must not require cultivation.
5. It must necessitate no manual or mechanical manipulation for separating the fibre.
6. Its habit must be gregarious, but it must have sufficient local abundance to

bring the cost of cutting and collecting within economic limits.

7. It must contain at least 30 per cent. of cellulose (or, in my own opinion, at least 40 per cent.)

8. The total quantity within economic collecting radius of a mill site must be sufficient to produce at least 25,000 tons of pulp annually.

9. It must grow in a locality possessing cheap labor and a good water supply.

10. It must grow within economic range of power, and transport to seaport.

Mr. Little also dwelt upon the imperative necessity of placing the technology of paper making in the United States on a higher plane, and urged the establishment of paper making schools. —[We purpose reprinting an abstract of his paper in an early issue.]



REVIEW OF FOREIGN PULP MARKET FOR 1909.

[By Hans Lagerlöf, New York.]

Comparing the foreign pulp market during 1909 with conditions prevailing in 1908, the year just gone by did not show any marked improvement in prices. In fact, prices were even lower on an average in 1909 than in 1908, and if it had not been for the Swedish strike tying up every cellulose mill in that country, except for seven mills, for a period of three months, cutting out of the market about 105,000 tons of different grades of cellulose, there is no foretelling where the bottom of the market would have been reached.

As it is, prices may now be considered to have touched bottom, all the different grades considered, and that the tendency is slowly, in fact very slowly, but surely, tending upwards.

Another point in favor of getting better life into the market has been the increased demand from the United States and the import figures show an increase in 1909 over the figures of 1908 of between 60 and 70 per cent. The American market has been one of the principal supporters of the cellulose

market in Europe and no market has played such a conspicuous role in creating cheerfulness and hope for better times than the American.

The increase in imports of European cellulose would have been decidedly higher in tonnage if the uncertainty of the American tariff had not been causing uneasiness. This uneasiness has not disappeared fully at this writing as the remarkable wording of the American tariff leaves an uncertainty as to duties to be imposed on all imports from everywhere for the next four years.

Looking at conditions in general, 1910 promises to be a still better year also as far as imports of pulps are concerned, but the low freight rates which were in effect during 1909 from seaports to interior western points and which so materially helped to boom trade in and to the West, have now been ratified and the old commodity rates re-established, being from 40. to 50. per hundred lbs. higher, and there is no question that a vast amount of the foreign business to the West will now be lost and domestic manufacturers benefit instead.

The over-production of cellulose in Europe may be estimated when the strike in Sweden cutting out about one-sixth of the annual production in Sweden and Norway, did not help to relieve the situation to any extent, but when operations were again resumed in all the mills in Sweden in October, prices again went lower and even after the close of navigation in November, prices did not advance to any extent, at right along, pulp could be bought at low figures.

The strike in Sweden enabled other countries and certain mills to profit and export during its duration somewhat higher prices for their production, and especially Germany and Norway were benefited by the labor conflict in Sweden.

Thus far a time a better tenor was established in the foreign pulp market.

At the close of navigation prices were low as yet, but somewhat higher on an average than in July and August. The mills have got as yet goods on hand

and no substantial advance can really be looked for during the year 1910. However, all through the time of the depression in the cellulose industry now existing since a little over two years, well-known marks have fetched decided premiums and are to-day selling at very fair figures indeed, and of those well-known brands in fact very little is to be had and whatever prices are asked by the mills, in some cases are paid.

Of the various commodities, Kraft soda Pulps have played the most conspicuous role in the United States, as owing to the increase of 10 per cent. on the duty of Kraft paper, the crude commodity has gained in demand. The first-class article as well as the low inferior qualities have both been in excellent demand and this demand will undoubtedly keep up during 1910.

However, in spite of the American demand, prices for soda pulps in Europe have been lowered and are as low to-day really as at any time before. This is especially on account of the tremendous expansion of this industry in Europe, principally because of Finland having added so many mills during 1909 to those already in existence.

Ordinary soda pulps have been selling lower than at any time for the last seven or eight years and considerable business has been closed for shipment to this country.

The commodity showing the most demoralization and weakness during the year has been, however, bleached sulphite. In fact, it has been nearly impossible to sell the same except at the buyers own figure. The weakness is caused by the tremendous stock on hand by the big Norwegian corporation, controlling the manufacture and sale of the major portion of all the first class bleached sulphite made in the world.

On the other hand, the commodity of bleached straw pulp being sparingly made and used, has really seen no lowering and it seems as yet, although going under the commodity of bleached goods. The same can be said as referring to bleached Esparto.

Bleached soda pulps have felt the bad effects of the lowering of bleached sulphites and prices are to-day extremely low. This article has been depressed likewise by over-production.

The kind of cellulose showing up best at present is the easy bleaching sulphite, which has been moving in good quantities and is selling at very fair prices with an advancing tendency.

Strong unbleached sulphites, either Mitscherlich or others, are low and uncertain, and here the Germans have stepped in and entirely demoralized prices.

Good secondary sulphites have been selling freely as low as \$1.67½. Tertia grades as low as \$1.35, and prime grades as low as \$1.80, but opportunities for getting good-sized quantities of these goods at these figures are now few and far between.

As for spot business, i.e., occasional business closed during 1909, the demand has been good, showing that the mills here have been enjoying a better amount of trade than in the preceding year, and appreciating fully the advantage to them of the depression in the cellulose industry in Europe.

In July and August last year, when the demoralization of the European cellulose market was at its height and when the pressure of heavy stocks and bad times was most intensely felt and the low level of the year may be considered to have been touched, prices may have been said to have ranged as follows:—

Prime easy bleaching unbleached sulphite	\$1.92½
Secondary easy bleaching unbleached sulphite	1.85
Mitscherlich prime strong unbleached sulphite	1.90
Ordinary prime strong unbleached sulphite	1.85
Secondary strong unbleached sulphite	1.67½
Ordinary bleached sulphite, prime	2.60
Mitscherlich strong, clean bleached sulphite	2.75

Unbleached Kraft soda pulp, prime	1.92½
Ordinary unbleached soda pulp	1.65

These prices are rock bottom figures, and, according to qualities, sold at those figures and up, per hundred pounds, ex-dock American Atlantic seaport.

Considering these figures and prices ruling to-day, it can be said that adding 5c. to 7½c. per hundred pounds, we will get the actual market values.

Earlier was mentioned as disturbing features for still higher import tonnage of European cellulose to the United States the higher freight rates established to interior Western points, and secondly the uncertainties of the American tariff. As a third point must be considered, however, the step taken by the domestic manufacturers in the fall of lowering unbleached sulphites for delivery in the West by 15c. per hundred pounds.

This had a very detrimental effect also on the selling of foreign pulps, for Western delivery, as fifteen cents lowering by the domestic manufacturers plus the increase of inland freight rates to Western points of 5c., somewhat firmer tenor at the end of the year in foreign pulp prices, made quotations for foreign goods about 22½c. to 27½c. per hundred pounds higher than a few months previously, and therefore foreign pulps have a hard time in finding an outlet in the Western market just at present. A good deal of contract business was also lost in the West owing to nobody knowing what freight rates were going to be for 1910 until these were published the latter part of December.

On the other hand, Domestic bleached sulphites have kept fairly steady and foreign bleached sulphites are actually lower than the domestic product. That foreign bleached sulphite is having the worst of the bargain at present can be seen when the actual decline since the panic in 1907 amounts to not less than 50c. to 60c. per hundred pounds.

For domestic bleached sulphites of first-class quality, prices all through the panic have remained fairly steady.

(Continued on advertising page 50).

SECOND HAND ENGINES FOR SALE.

1 **Brown Engine** 20 $\frac{1}{2}$ x 54 62 R.P.M. 300 H.P. 16 ft. x 31 $\frac{1}{2}$ in. fly-wheel, complete with Bulkley Syphon Condenser and usual valves, fittings and indicator piping.

1 **Brown Engine** 13 x 34 91 R.P.M. 70 H.P. complete with usual valves, fittings and indicator piping.

Apply for Prices, etc.

1 **Peerless Engine** 11x10, 35 h.p., 283 r.p.m. two 4' x 12 $\frac{1}{2}$ " fly wheels, complete with usual valves: fittings and indicator piping.

1 **Slide Valve Engine** 10 5-16 x 21. 84 R.P.M. 10 ft. x 16 in fly-wheel, complete with usual valves fittings and indicator piping.

MONTREAL
TORONTO

CANADA PAPER CO.
LIMITED

WINDSOR
MILLS, P.Q.

FOR SALE

- 1 WET MACHINE, 78" wide.
- 2 HYDRAULIC TRIPLEX PUMPS, 1 $\frac{3}{4}$ " dia. of plunger, 4" stroke, pressure 1,500 lbs.
- 1 HYDRAULIC TRIPLEX PUMP, 1 $\frac{3}{4}$ " dia. of plunger, 6" stroke, pressure 1,500 lbs.
- 2 HYDRAULIC PRESSES, cylinder 20" dia. daylight 4' 3", lift 32", size of platen 30" x 40", pressure 1,500 lbs.
- 1 KNUCKLE JOINTED BALING PRESS, daylight 5'-8", lift 2'-1", platen 24" x 36".
- 1 HYDRAULIC ACCUMULATOR, 9" ram by 10' long, pressure 1,500 lbs.

All in good order. Apply

Jonquiere Pulp Company

JONQUIERE, QUE.

WANTED

Position as superintendent or builder of Sulphite Pulp or Wood Pulp Paper Mill. Wide Experience abroad, U.S., Scandinavia, Russia, etc., as well as in this country. Highest testimonials for economical construction. Consumption of sulphur in last mill built 8%. (As against 12 1-2%) Brown Mech. Pulp and Paper (imitat "Kraft"), a specialty. Correspondence solicited. Address, R.S.T. c/o this paper

WANTED

Correspondence with parties interested in starting a mill for "natural" brown steamed wood pulp and paper. The advertiser is a specialist in this line from Scandinavia. Highest testimonials. Address C. E. B., c/o Pulp & Paper Magazine of Canada

FOR SALE.

Two Daniel Cutters, arranged to run tandem. These cutters were doing good work before taken out.

Box 12, "Pulp and Paper Magazine."

FOR SALE.

Two Whyte oscillating paper machine screens. Capacity, three tons each per day. Good as new. Box 11, "Pulp and Paper Magazine."

POSITION WANTED by mechanical engineer and chemist. Up-to-date on direct and indirect cooked sulphite, both strong and easy bleaching, construction, maintenance and bleaching. Address, "Efficient," "Pulp and Paper Magazine."

SCANDINAVIAN, experienced on soda cellulose and sulphate of soda cellulose, "Kraft Pulp," wants position with reliable firm: wide experience in the building line. Address, "Kraft Pulp," "Pulp and Paper Magazine."

WANTED.—Machine tender for cylinder machine making saturating felts. Mill runs two tours. State experience and wages. French Canadian or man speaking French preferred. Give references. Box 14, "Pulp & Paper Magazine."

The Millspaugh Patent Revolving Suction Rolls are now offered to the Canadian trade manufactured in Canada by the Waterous Engine Works Co., Brantford, Ont. We will be pleased to receive your inquiries at Sandusky.

THE SANDUSKY FOUNDRY AND MACHINE CO.

Sandusky, Ohio.

PAPER and PULP MILL for SALE on EASY TERMS

We will sell all or any part of the following paper and pulp mill machinery:—

1 68-inch Machine. 3 New England Grinders. 2 Jordan Engines. 3 Gotham Screens. 2 Gould Screens. 2 Goodrick Screens. 1 Horne Beater Engine. 3 Tub Beater Engines. 400 to 500 60-inch Boiler Shell, suitable for penstock. 1 Bulkley Condenser, nearly new, suitable for 300 H.P. Engine. 1 Worthington Pump, nearly new, No. 122,950, 152 x 216 x 152, 6 x 8 x 6.

And a large number of pumps of various sizes and makes; also a lot of rubber belting, nearly new, running in size up to 24-inch; also piping, valves, and, in short, everything needed to equip a paper and pulp mill. The pulp-grinders are in extra good condition. We would take part interest in a paper or pulp mill as part payment for this machinery.

P. J. RILEY & CO., Lowell, Mass.

EDUCATION APPLIED TO PULP INDUSTRY.

In the discussion on technical education which came up in the House of Commons last month on the resolution of Mr. Guthrie, the question of pulp manufacture was brought up by Mr. Fowke. He said: As has been well stated here, there are many industries in the Dominion of Canada that have barely been touched upon yet. Take, for instance, the pulp-wood industry. Great quantities of pulp as well as many other products of Canada are shipped to the United States in the raw state. If we had technical education, if our people were prepared to take hold of the different industries, such as the pulp-wood industry, and in place of sending abroad partly manufactured products to be returned to us in the finished state, should send out finished products, it would be greatly to the benefit of Canadian manufacturers and of Canada generally. I believe that if the government would take action on the statement of facts as presented by the hon. member for South Wellington (Mr. Guthrie) the country would endorse them in providing at least 25 to 30 per cent. of the cost of taking care of any technical school that may be started in any province. The hon. member (Mr. Guthrie) stated that in the German Empire they pay 28 per cent., and I think that this government would be perfectly justified in arranging to contribute to the extent of 25 to 30 per cent. of the cost of running any technical school in the Dominion of Canada."



NEWFOUNDLAND PULPWOOD LICENSES

In view of the wide interest being manifested in Newfoundland and in that island's pulp-wood resources, the following information gleaned from the report of A. E. Rea, Canadian commercial agent, St. John's, may prove of value:

The Governor in Council may grant licences to cut timber on Crown land

for the manufacture of paper and paper pulp.

Such license may be issued for a period of ninety-nine years, and for such further period as may be deemed necessary, and for an area of land in extent not less than five and not more than one hundred and fifty square miles, and shall be issued subject to the following conditions, and any other special condition which may be contained in such license:

Upon the issue of such a license the licensee shall pay to the Minister of Agriculture and Mines, for the use of the colony, a sum at the rate of five dollars for each square mile of land included in such license, and thereafter, at the beginning of each year of the said term, a further sum at the rate of three dollars for each square mile as aforesaid.

The licensee shall, within five years after the date of such license, bona fide expend a sum of not less than twenty thousand dollars in the erection of buildings and machinery necessary for the establishment of a factory or factories for the manufacture of paper pulp, the said expenditure to commence within two years from the date of such license, and continue thereafter at the rate of not less than twenty five per cent. per year of the whole sum.

The licensee shall make returns to the Government quarterly, or at such periods as may be required by the Governor in Council, such returns to be verified by the affidavit of the licensee or his agent, and shall show quantity of lumber manufactured into pulp or otherwise, and the quantity sold or disposed of, and the price and value thereof.



The convention number of the Paper Trade Journal is certainly a fine production. Three hundred pages of reading and advertising matter, all well set up, and illustrated and enclosed in colored cover, is a high-water mark of achievement in pulp and paper trade journalism.

THE PULP AND PAPER MAGAZINE OF CANADA

Vol. 8.—No.4.

TORONTO, APRIL, 1910.

{ CANADA \$1. A YEAR
{ SINGLE COPY 10c.

Pulp and Paper Magazine

A monthly magazine devoted to the interests of Canadian pulp and paper manufacturers and the paper trade.

Subscriptions: Canada and British Empire, \$1.00 per year. United States and Foreign, on account of postage \$1.50 per year.

The Pulp and Paper Magazine is published on the second Tuesday of each month. Changes of advertisements should be in the publishers' hands not later than the 1st of the month, and, where proofs are required four days earlier. Cuts should be sent by mail, not by express.

BIGGAR-WILSON, Ltd.

PUBLISHERS.

Offices, **Confederation Life Building,**
Toronto, Canada.

RELATIONS WITH THE UNITED STATES.

From the beginning of the recent tariff strain between Canada and the United States and during the preceding period, in which pulp and paper clauses of the Aldrich-Payne bill were so earnestly discussed on both sides of the line, this magazine consistently urged that it was no part of this country's duty to sacrifice her dignity to help the United States people out of the hole in which their own politicians had placed her; and more emphatically still, that we could recognize no vestige of claim on the part of our neighbors to say what Canada should or what Canada should not do in the way of formulating a fiscal

policy. We adhere to these principles still; and for this very reason we believe that Hon. Mr. Fielding has come through a trying siege with flying colors. He did not, it is true, flaunt a spirit of non-compromise before the face of the United States, and come back with the triumph of obtaining everything for nothing. But neither did he have to break in spirit the principle that Canadians must carry out their own legislation free from threats or coercion from other nations. Let us hear the case as it was put before the House of Commons by Mr. Fielding himself:—

“If the maximum tariff of the United States had to be applied to Canada, it is more than probable that public opinion in Canada would have demanded retaliation in the form of the Canadian surtax, or perhaps a larger surtax, perhaps in other respects as well. This undoubtedly would have brought about a most deplorable tariff war. In that war my own judgment is that the United States would have suffered more than Canada, but both would have suffered, and in an enormous degree. Even the men who realized that perhaps they would be the first to suffer were, as a rule, disposed to take the ground that we ought not to make concessions to the United States of the large character de-

manded, but everyone with whom I discussed the question personally said: 'This will be a great disaster, and if it be possible by any moderate concession to avert such a disaster it is the duty of the Government and of Parliament to adopt that course.' That is the spirit in which the Government have approached the question. So long as the United States Government placed their high tariff upon Canadian products and refused all overtures from Canada the public opinion of Canada was most pronounced that we were bound to maintain our honor and independence. But the moment the United States indicated their willingness to open negotiations, to come to Canada and discuss the question with us, that moment the Government felt that it was their duty to meet them in the spirit in which they had come to us."

In a good many people's minds in Canada there has undoubtedly been almost a wish that the recent strained tariff question would lead to a violent upward move on our part to meet the American tariff against ourselves as a tit for tat for what we have suffered in the past. Not that in the negotiations of the past few weeks has there been any cause for complaint against the methods adopted by the Washington authorities in carrying on those negotiations. There has been little of the old big-stick bluffing manner of the past. In fact, President Taft tried to show, and we have no reason for doubting his sincerity, that it was his own strong desire to permit Canadian products on their minimum tariff, but that he was prevented by the stringent terms of the Aldrich-Payne bill from doing so, unless he could be shown some more or

less valid reason for doing so. This might take the form of a few minor face concessions from Canada; in fact, it was generally believed that the United States had in effect asked Canada to give her a friendly hand to help her out of her own legislative muddle.

Be this as it may, the Canadian Government has made a compromise under which we reap the benefit of the United States minimum tariff, and we give her a 2½ per cent. tariff reduction on a considerable number of minor items, which do not, however, cut any great figure. Some of Mr. Fielding's party opponents complain of this as a national humiliation. So far as we see it, however, this is scarcely fair, for Canada, with but few exceptions, only gives concessions where they could not hurt existing industries; moreover, the concessions are made to all other countries as well as the United States. So we have not singled her out for favors because of her maximum tariff threat. In fact, the real principle involved, namely, that on no condition whatever could Canada forfeit her right to make her own tariff legislation free from coercion from the United States, has not been touched, and for this principle Canadians would have stood to the last ditch. It seems a pity that there is even the appearance of its having been touched, but this is certainly better than the devastating commercial warfare which would have ensued had tariff retaliation been resorted to. The fact that the United States would have suffered worse than Canada does not hide the unpleasantness of the effect on this country.

During the negotiations the startling discovery was made by the United States delegates to Ottawa that the United

States, on the average, actually charged less duty against Canadian products than we do against theirs. We do not like to make reference to the amendment on the old adage of "figures cannot lie," but we certainly do think that it will take very little energy to show that the trade statistics of the two countries show nothing of the kind. If the Canadian Government should ever go upon the principle of making the Canadian customs tariff on exactly the same basis as that of the United States, we know—and the United States knows full well—that there would be a pretty stiff upward rush on our side.

One point which is still giving rise to a good deal of speculation is as to the status of the question of prohibiting or restricting the export of pulp-wood either by the Dominion or the various Provincial Governments. The United States representatives asked Mr. Fielding whether some friendly arrangement could not be made with the Provincial Governments whereby the restrictions now made, or likely to be made, respecting shipments of pulp-wood to the United States could be modified. The Dominion Government made it clear to the United States that this was a matter for purely provincial jurisdiction, and that it could not interfere. Mr. Fielding reiterated in the House that the right of the Canadian Parliament to levy an export duty on pulpwood remains absolutely untouched by the terms of the agreement recently concluded with the United States. The question, however, still remains unsettled as to what may happen if or when the Quebec Government carries out its announced intention of charging after September next

extra rates on logs cut for shipment out of the country.

The new United States tariff law provides for a duty of one-sixth of one cent a pound on chemical wood pulp, unbleached; one-fourth of one cent on the bleached, and admission free of mechanically ground pulp, provided that no export tax or other restriction on the exportation of products be imposed by foreign Governments. In case restrictions are imposed, the law provides for a duty of one-twelfth of one cent a pound on mechanically ground pulp, and double the minimum rate on chemically ground pulp. In addition to this there is to be imposed duty equal to the amount of export duty levied by the foreign country involved.

Pending actual customs decisions, it is not quite clear how this will work out or whether the penalizing clauses in the Aldrich-Payne bill in the case of pulp and paper have been swept away through the new agreement. It is supposed generally that they will be inoperative.



PROHIBITION OF MARITIME PULP- WOOD EXPORT.

The Nova Scotia Government has brought in legislation making several important changes in the Crown Lands Act. They lead to the appointment of a Provincial Land Surveyor and the reorganization of the survey system, while another provision enables the Government to establish forest reserves. Crown lands will not be granted hereafter except to bona fide settlers, it having been found in the past that a good deal of such land had been taken up under such a plea but when in fact, the only object was to obtain possession of the timber

growing on it. One clause of the old Act is re-enacted to the effect that lands upon which the trees are of scrubby growth, and upon which hardwood is the principal growth may be leased, under terms and conditions to be prescribed, provided the person proposing to lease the same undertakes to expend money in the erection of mills and machinery for the manufacture of pulp, or other wood products.

Section 84 of the new Bill reads: The Governor-in-Council may at such time as is deemed expedient prohibit the export to foreign countries of pulp-wood or timber or wood cut or removed from lands belonging to or held under lease or license from the Crown, to be used in the manufacture of pulp or pulp products.

In giving notice of the above legislation Attorney-General Maclean explained that the above power will not be exercised except for good reasons, but, he added, he thought there were many good reasons why the Government should take the power.

In the New Brunswick Legislature on 17th ult. Mr. MacLachlin of Northumberland, moved a motion requiring that all pulp and wood for pulp-making cut on Crown lands should be manufactured in the Province. In moving the resolution he said public opinion estimated the amount of lumber in the country as much greater than it really was, and owing to the consumption in the United States the future supply was seriously threatened. He advocated putting on such a duty as would curtail exports, and cause pulp-wood to be manufactured at home, thus providing employment for thousands of hands, and keep-

ing in the province a vast sum of money, which would otherwise be spent abroad. The following resolution was carried unanimously: "That, in order that the advantages of our own natural resources may to a greater extent be secured to the people of our country and public domain preserved, all pulp-wood and wood for pulp-making purposes cut on Crown lands of New Brunswick, should be manufactured within the province."

The above news from Fredericton and Halifax shows that these two important provinces by the sea have fallen into line with regard to this question of conserving Canadian pulp-wood resources. Export is not yet restricted by either governments, but the machinery for doing so has been provided, so that it can be done if deemed necessary, at short notice.



PROPOSED NEW EDDY PLANT.

For some time past the E. B. Eddy Co., Hull, has had in mind the erection of an auxiliary plant or subsidiary factory to take care of their Western business. With this in view many places have been visited and many letters have been received and official representations made on behalf of towns in various parts of Canada and the United States. Several of these have offered bonuses or other inducements. The company has twenty-two warehouses scattered through Canada. One of the largest of these is at Fort William. Products of the Hull plant consigned to the West have to be shipped to these warehouses and distributed from there. During the last few years the plant has been taxed to the limit, and has not been exporting to outside countries, as all its output is needed to supply Canadian markets. The new factory will turn out matches, paper and fibre ware to supply the West.

ern market, while the home plant will then be better able to cope with the export trade. The question of location would probably have been decided before this but for the fact that Mr. Rowley contemplates a three months' trip to Great Britain, and that almost immediately on his return he will attend the Canadian Manufacturers' Convention at Vancouver, of which body he is vice-president. This will throw a great deal of extra work upon Mr. Miller, the joint manager, upon whom the chief responsibility for the erection and operation of the new plant rests. In consequence of these considerations the company has decided to leave the whole matter in abeyance until next fall.



SAFETY DEVICES IN PULP MILLS.

Thos. Kelly, Factory Inspector in Ontario, makes a report affecting lumber and pulp mills as follows:—

"Another industry which is closely allied, if not a part of the lumber industry, is the manufacture of pulp, and which follows into the manufacture of paper. Within the last few years this combined industry has assumed large proportions in this province. In the past the manufacture of pulp was an almost distinct occupation, but of late many of our large lumber mills have turned their attention to the manufacture of pulp; or, at least, where this is not done, to the supply of pulp material. The latest to enter this line on a large scale in my district, is J. R. Booth, of Ottawa, who manufactures lumber, pulp and paper at his own extensive works in the above-named city, employing an aggregate of twelve hundred men. And in justice to their enterprise, I am satisfied that his new pulp and paper mills are among the best, if not the best, on the continent, from a constructive, sanitary and safety standpoint. Of course, this plant being recently constructed, would have the advantage of past exper-

ience in remedying defects in constructive, safety and sanitary appliances. But experience has convinced me that unless humanitarian interests and modern enterprise are combined, we cannot hope for the best results. My only purpose in referring to this particular plant is to give credit where credit is due, and with the hope that what I have to say will be of benefit to other similar industries in remedying defects that exist in or about their premises.

"A plant for the manufacture of pulp, or pulp and paper, requires a large amount of heavy machinery and shafting. This machinery in some parts is operated at a high rate of speed, and necessarily requires a good substantial foundation, not only in behalf of the life and duration of the machine, but also its safety and effectiveness. It also requires that its dangerous parts be securely protected against accident as far as practicable. Then the shafting, counter-shafting and couplings require to be put up in a substantial and well-balanced manner, and lastly, securely fenced and protected in all parts exposed to traffic. This latter direction also applies to pulleys, belting and drives. All stairs and openings should be securely railed, also planks or gangways provided for oiling, or as a means of access to any part of the machinery or shafting, should have strong and suitable handrails for the protection of persons whose duties require them to have access to such parts.

"In putting up handrails or protection of any kind, do so with the object of making that part perfectly safe. I have in mind instances where railing was put up at the direction of the inspector, and I afterwards discovered the danger had increased because of the temporary nature of the protection. If a man were to turn his cattle into a field where there was an open well, he would not simply throw a rail across that well to protect his cattle, but he would put a substantial fence around the well to protect them. The same applies more

forcibly to the railing or fencing of dangerous machinery, where human life is at stake. Strange to say, however, some persons consider their legal obligations only, and these in a literal sense.

"Another phase of this industry is its sanitary effects. It has been proven beyond doubt that certain processes in the manufacture of sulphite pulp are very injurious to workmen; the evil effects from these processes have been practically removed in the system installed in J. R. Booth's mills. The injurious effects consisted in the presence of sulphuric acid gas in such quantities as to contaminate the air in a very harmful degree, and thereby cause the workmen to inhale almost continuously during working hours this poisoned air. The origin of these gases is found to be principally in the washing tanks."



THE PRODUCTION OF ACETATES FROM ESPARTO AND SODA WOOD PULP LIQUORS.

By Clayton Beadle and Henry P. Stevens

Attempts have, from time to time, been made to obtain valuable products from the liquors resulting from the treatment of wood and esparto by the soda process. This note refers only with the production of acetates. Roughly speaking, when treating either wood or esparto for conversion into pulp about one-half is converted into bleached fibres, the other half being rendered soluble by the addition of alkaline and bleaching liquors. Of the amount removed and rendered soluble in a well boiled pulp, say about four-fifths is removed either during the boiling or subsequent washing; the balance, one-fifth of 75 per cent. (75 per cent. on weight of raw material) is left for the bleach to oxidize, act upon and remove. The yields of fibre as well as the amount of soluble organic matter vary somewhat with different kinds of wood and esparto and the conditions of treatment, but the above may be taken as sufficiently near

for general purposes. That the organic matter so removed should be turned to good account has not been lost sight of by the chemist, but so far the most practicable way of dealing with the liquor has been the treatment for the recovery of soda for re-use in boiling.

In 1892 a process was patented by W. H. Higgins for the manufacture of sodium acetate from these waste liquors. At present, of course, the universal method of dealing with these waste liquors (where the soda is strong enough) is to evaporate down and incinerate the product for the recovery of the soda, by which process about 85 per cent. of the soda is recovered as sodium carbonate, the loss being made up by the addition of soda ash or caustic soda, either before or during the process of causticising, for the conversion of carbonate into caustic soda.

The reasons, perhaps, why the paper-maker is not attracted to any process other than the recovery process are perhaps two-fold. Firstly, he does not wish to saddle himself with any additional chemical operations beyond those that are absolutely necessary to his manufacture, and, secondly, in the recovery process he is all the time producing that which he requires in his manufacture. There is a further consideration that would weigh heavily with him, namely, the question of effluent. Under the recovery process he does away with all effluent due to his waste boiling liquors, and it must not be forgotten that this effluent was at one time the bête noir of the esparto mills, and remained so until a proper system of recovery was devised. In fact it was the necessity of getting rid of this effluent, which resulted in so much damage to the riparian owners, that put him on to soda recovery processes, so that, that which was inaugurated as a matter of necessity became afterwards a source of profit by reason of the recovery of chemicals. Now this recovery of chemicals is again a matter of necessity, because without it it would be quite impossible to manufacture at a profit.

We think, however, it is worth while to ventilate the question of by-products further, and with this object we have recently looked into the Higgins process for the manufacture of sodium acetate. Higgins evaporates the liquor and subjects the residual mass to a carefully regulated heat slightly below that at which sodium acetate decomposes, and which in the case of esparto liquor would be 400° Centigrade, the mass being subject to this heat until it ceases to give off strongly smelling gases. As this process may become of interest to papermakers we quote from the patentee's own description of his process:—

"The object of my invention is to obtain acetate of sodium from such liquors and by-products and to recover the alkali used in their preparation.

"The improved process is carried into effect by evaporating the water contained in the solution and then subjecting the residual mass obtained thereby in any suitable apparatus to carefully regulated heat in such a manner that it is maintained at a temperature slightly below that at which acetate of sodium begins to decompose and which in the case of residue from esparto liquor for example, would be about 400 degrees centigrade.

"The mass is subjected to this heat until it ceases to give off the strongly smelling gases evolved under this treatment. The subjection of the residual mass to this carefully regulated temperature is the chief point in my improved process, because if the indicated temperature should be unduly exceeded the acetate of sodium present in the mass would be decomposed and lost, while if too low a temperature were employed the acetate of sodium would be obtained in considerably less quantity.

"When properly conducted at or about the temperature I have indicated, the result of the process is that some of the organic matter is not destroyed but remains. The mass is maintained at the requisite temperature until the strongly smelling gases are no longer given off, whereupon it may be withdrawn. I have

mentioned 400° C. as a suitable temperature the acetate is practically complete at the temperature to use because the production of temperature which is nevertheless still about 50° below the point at which decomposition of the acetate under these circumstances would take place.

"Another advantage of the high temperature is that the resulting mass or 'char' produced at that heat is of the most favorable nature for the extraction of the acetate and its subsequent refining. I wish, however, to state expressly that the application of any temperature below the decomposing point of acetate in large quantity in the mass, although as I have already stated the results, will not be so good as where a temperature of about 400° C. is used as directed. The resulting mass or 'char' produced at the lower temperatures is also less amenable to treatment for the recovery of the acetate than is the mass or 'char' obtained by the higher temperature. The said resulting 'char' or mass, as obtained preferably from the higher temperature under the most improved method of carrying my invention into effect, consists of a dry, easily pulverised coke-like mass, which contains frequently about 15 per cent. of its own weight of anhydrous acetate of sodium. When treated with water in a suitable manner it yields the most of the contained acetate of sodium along with some carbonate of sodium and organic matter as a solution. There is also a quantity of black insoluble residue which after drying may be burned, when it leaves as a white ash a large proportion of the alkali originally used in the preparation of the liquor as carbonate of soda.

"In practice it will be found that different liquors or by-products require slight variations in the temperatures at which my improved process can be best carried out, but in any case the temperature should always be as nearly below the point at which the acetate decomposes as is safe, regard being had to the danger of local or accidental overheating.

CANADIAN FORESTRY ASSOCIATION.

The eleventh annual business meeting of the Canadian Forestry Association was held in Ottawa on the 10th ult. Reports presented showed a largely-increased membership and a growing interest in all parts of Canada in the work of the association.

The first year's work of the new permanent Secretary, James Lawler, in organizing and delivering illustrated lectures on forestry throughout Canada, was pronounced to have had most successful results.

Officers elected were :—President, Senator Edwards; Vice-President, Geo. Y. Chown, Kingston. The directors were increased from fifteen to twenty-two, and the following new ones elected: Thomas Southworth, Toronto; Aubrey White, Toronto; R. L. Borden, M.P.; A. P. Stevenson, Dunstan, Man.; G. C. Piche, Quebec; F. C. Whitman, Annapolis Royal, N.S.; Alex. MacLaurin, Montreal, and Carl Riordon, Montreal.

HIGH SPEED WASTE.

There is something fascinating in the idea of doubling one's production without any more cost of labor. But the paper maker will find often that his high speed machine gives a lot of waste, and that the machine attendant will lay the fault to the pulp, and not without reason. The beaters will lay the fault to the management of the wires or the dry end, or what not, and also not always without justification. It should be remembered as a fundamental canon of paper making, that production at a high speed requires greater care all along the line. A carefully and scientifically made pulp and careful handling are absolutely essential, and the more so the higher the speed at which the paper leaves the drying cylinder.

Another point is that a high percentage of chemical pulp is against working at high speed. It should not exceed 20 per

cent of the whole mass. Waste fibre from the backwater is a useful ingredient in pulps intended to be worked up in a high speed machine. It is necessary, too, in rapid paper making, to keep the felts always clean and pervious, and they must be examined at short intervals throughout the entire process. Sticking of the web in transit must be carefully watched for. If it sticks to the felts or cylinders, nothing can be done but stop the machine, remedy the trouble and proceed at a lower rate. With such adhesions we have an unfailing sign of a badly made pulp, supposing that the Fourdrinier wire of the wet end are both working properly, or vice versa.

In conclusion we may say there need be no fear that good pulp can be made into paper at a high rate of speed in a proper apparatus, i.e., a machine designed for high speed running. It is only when paper makers use badly made pulp, or a Fourdrinier only meant for slow running, that troubles arise on trying to increase the output.

High speed work requires a pulp not too greasy, or at least a large administration of long fibred stuff, of which, again, about 5 per cent. is a sufficiently large ingredient of the finished pulp.

To test whether a paper is standing the strain of rapid production, the determination of the Reisslange is the chief point. The Reisslange means the length of a paper strip, which hanging vertically, will break by its own weight at the point of suspension. It is determined experimentally by taking a strip of known length and weight and breaking it by tension. It will be obvious to most persons if w is the weight of the strip, l its length, x its breaking weight, and L the Reisslange or break length, that

$$L = l \times \frac{x}{w}$$

x and w must of course refer to the same units of weight, and L gives the break length in the same units as those which have been used for expressing l . *Mentour de la Pap. Franc.*

MONTREAL PULP AND PAPER NEWS.

(Special to Pulp and Paper Magazine.)

Montreal, April 9th, 1910.

Although tariff matters between Canada and the United States have been settled in a satisfactory manner for the time being, much interest still attaches to the situation. It is the general belief that when Premier Gouin puts into force the full restrictions against the export of pulp-wood cut on Crown lands the United States may take some sort of retaliatory action, and hence the entire trade is watching all news from Quebec with much interest. It seems to be a foregone conclusion that the Quebec Government will restrict the export of pulp-wood from Crown lands, as already announced, and that in addition thereto a considerable increase in the rent of the timber limits will be imposed. The whole matter will be decided before the end of the present session and all doubts will be set at rest.

Quebec's Pulp-wood Policy.

The Hon. Mr. Allard, Minister of Lands and Forests for the Province of Quebec, speaking of the pulp-wood policy of the Government, said:—

"The Government has not sold any timber limits. We lease these limits to the lumbermen for one year. The lessee has the right to renew his lease every year, provided the stumpage dues have been paid and the Government regulations concerning the cutting of timber have been adhered to.

"Owing to the large amount invested in the timber industry, however, the limit-holders asked an assurance that the rent would not be increased for a certain time. In 1900, therefore, an order-in-council was passed by which the Government agreed not to increase the rent for a period of ten years. This agreement expires in September next. To make new terms with the limit-holders. The stumpage on pulp-wood cut on Government lands is sixty-five cents per

cord, with a rebate of twenty-five cents on that manufactured in the Province."

Mr. Caron would not admit that it was the intention of the Government to prohibit the exportation of pulp-wood, but said that if this was done it would undoubtedly be beneficial to the Province.

"The prohibition of exportation would have the effect of greatly increasing the industry in the Province," he said. "Many United States manufacturers would open mills on this side of the line, and this would give employment to a great many people. At present there are a great many young men in the Province who do not care to take farms, and, therefore, seek employment in the large mills on the other side of the line. The opening of new mills in this Province would keep these young men in their own country and would serve to check the flow of emigration to the United States. The new industries would also add greatly to the wealth of the Province."

While those who favor the proposition of the Quebec Government to refuse to permit the export of any pulp-wood cut on the Crown lands of the Province are in a great majority, there are a few who think that such a procedure would be followed in the United States by an increase in the duties against pulp and paper manufactured in Canada, and, notwithstanding the frequent statement that the United States has to come to Canada for these products, manufacturers are not all convinced that retaliatory measures of this nature by the United States would not bring with it considerable disadvantages to Canada.

Rossed Wood.

One pulp man, speaking to the "Pulp and Paper Magazine," said: "Of course, we all admire the policy which has been announced by Premier Gouin. With him we are confident that something

should be done in order that Canada may receive fuller advantages from her splendid position as owner of the enormous timber limits from which come the spruce wood which the pulp and paper manufacturers of the United States make such good use of. But it seems to me that by permitting the exportation of "rossed" pulp-wood the line of least resistance would be followed and advantages might be obtained without provoking reprisals. Pulp-wood in the rough should be prohibited as suggested by the Government, and Canada should get the advantage of at least some of the subsequent process of manufacture.

"It costs about as much to 'ross' wood as to saw it into boards, so that there is no reason why the export of sawn lumber should not be prohibited as well as that of rossed wood. In fact, the argument is in some respects stronger in favor of permitting the export of "rossed" pulp-wood than it is in the case of sawn lumber. It should not be forgotten that the "rossing" process permits of a lower grade of logs being used than could be sawn into boards. Therefore, the export of the latter takes from the country its best logs, while the export of the former takes logs such as tree-tops, gum-seam wood, short pieces, crooked and inferior timber, which might possibly otherwise remain in the woods to rot.

While Canada would get the advantage of the labor performed in the "rossing" process, the United States would have very little to complain of so long as they were enabled to buy "rossed" pulp-wood, inasmuch as the process would also bring them certain advantages. One of these advantages would be experienced in the matter of freight, inasmuch as the "rossed" product reduces the weight of the wood by probably 25 per cent.—some say 15 per cent. In addition to this, a very considerable advantage is derived through the saving in piling. Rough pulp-wood, as can readily be seen, can only be loosely piled, owing to the irregularities

of its surface, whereas the "rossing" process removes these irregularities and permits of very much more wood being piled into a cord.

As to the value to Canada of the labor of the rossing process, it would seem that, whereas pulp-wood might be selling at \$6 per cord, f.o.b. cars, at favorable shipping points, the same wood when rossed would probably bring \$9. This, at least, is the opinion of one man, so that an addition of 50 per cent. to the value of the rough pulp-wood is indicated as a result of the rossing process.

While it is desirable to carry out as much of the manufacturing process as possible in Canada, the prohibition of the export of the pulp itself has never been seriously considered. The rossing process, while not of as great value as that of manufacturing the wood into pulp, is still a very considerable step in the direction desired, and, as it brings with it also many advantages to the purchaser in the United States, it is not generally thought that the slight disadvantage to the latter would be sufficient to alter the tariff relationships of the two countries in the matter of pulp and paper.

The Union Bag and Paper Co.'s earnings for the year ended January 31st show a decrease in net profits of \$13,567, and a surplus decrease of \$80,585.

Labrador Pulp and Paper Co. Case.

Daniel Ford who was arrested some weeks ago on the strength of a complaint sworn out by Charles E. W. Smith, charging him with forgery, was dismissed by Judge Choquet, sitting in the Court of Special Sessions, there being no evidence to show that Mr. Ford was the perpetrator of the forgeries.

Both were shareholders and promoters of the Labrador Pulp and Paper Co., formed some eighteen months ago to develop and exploit a large tract of timber land in Labrador. The charge arose over a transfer of shares in this company.

Conservation in Quebec.

A Public Utilities Commission has recently been appointed by the Province of Quebec to study the position of all public utilities in the Province and report to the Government upon them. The Commission will have in mind the subject of the conservation of natural resources, and will have jurisdiction over water powers, forest areas and Crown lands. It is believed that the Commission will eventually be given wider powers than at present, although it will at present act merely in an advisory capacity.



CANADA'S TRADE IN PULP AND PAPER.

Export statistics recently compiled by the Dominion Government show that for the last nine months of the calendar year of 1909 Canada sold the United States \$5,000,000 worth of pulp-wood, as compared with a shade over \$3,500,000 worth for the corresponding months of 1908. There was no other customer for Canadian pulp-wood. In wood pulp the United States bought in the last nine months of the year closed \$3,000,000 worth, or just four times as much as Great Britain bought. The total sales of wood pulp in the last nine months of 1909 were \$3,800,000, as compared to \$3,200,000 in the corresponding period of the year before. Canada's total sales of paper in the last nine months of 1909 were \$2,000,000, or half a million less than for the corresponding months of the year before. The United States and Great Britain each bought three-quarters of a million in the last three-quarters of 1909.

Canada's importations of paper in the last nine months of 1909 amounted to nearly \$3,500,000. The United States sold her two and a quarter millions and Great Britain three-quarters of a million. The total buying exceeded the nine months of the year before by three-quarters of a million.

Excelsior Ltd., Toronto, capital \$150,000, is incorporated to manufacture wood fibre excelsior, build pulp, paper and lumber mills. J. A. Manning, Owen Sound, and Geo. Howard, Toronto.

National Timber and Pulp Co. Ltd., Toronto, capital \$500,000, has been incorporated. It owns timber areas in Quebec Province, comprising large quantities of pulpwood. The company proposes to erect a large pulp mill at a point where the St. Anne's and St. Lawrence Rivers meet. W. Percy Sherwood and A. E. Matthews, Toronto, are incorporators.



—Professor B. E. Fernow, Dean of the Faculty of Forestry at Toronto University gave a fine address on the 9th inst., on the fundamental philosophy of conservation, which he emphatically said "was not a fad but a fight for the rights of future generations against the attacks of predatory wealth in the present." In Canada, he said three-quarters of the area can be said to be only fit for wood-growing. Wood growing must be regarded as a business as much as fruit-growing. It must be treated as a crop. Private interests were not favorable to this, and all the necessities of the case called for public ownership of forest lands.

—Hydro-electric development has a great future in the north, according to L. V. Rorke, addressing the Engineers' Club on "Water Powers on Our Northern Slope to James Bay." He gave the following summary: Abitibi, Black and Frederickhouse Rivers would develop 359,300 horse-power; Metagami, Kapuskasing and Groundhog Rivers, 693,800 horse-power; Missinabie and Opazatika Rivers, 292,100 horse-power; Kabinakagami and Kenogami Rivers, 98,800 horse-power; Ogoke River, 216,600 horse-power; Winnipeg and English Rivers, 370,000 horse-power; a total of 2,030,600 horse-power.

PULP AND PAPER NEWS

The Somerville Gum Company, London, Ont., will increase the capacity of its box factory. * * *

Robert Davies, President of the Don Valley Paper Mills, Toronto, has been on a holiday to Bermuda. * * *

The Montrose Paper Company, Thorold, Ont., has installed a large filtration system, which will give the mill at all times a sure supply of good clean water. * * *

F. A. Ritchie of Ritchie & Ramsay, manufacturers of coated paper, New Toronto, has been on a trip to the West Indies. * * *

A Bill has passed in the Ottawa House to incorporate a car ferry company at Morrisburg, Ont. The ferry will convey pulp-wood from Canada to Waddington, N.Y.

It is reported a project is on foot to manufacture pulp at Morrisburg by means of power transmitted from the new Remington water-power development at Waddington, and to export the product thither. It is not possible to confirm this however, and it is probably only a rumor springing from the above ferry project. * * *

W. P. Ryrie, of the Ryrie Paper Company, Toronto, returned a fortnight or so ago from a pleasant trip to England, looking as well as ever. He has now departed on a trip to New Orleans, La. * * *

The Hinde Dauch Company, who recently erected a corrugated paper box factory in Toronto have met with such a strong demand for their goods that they are already talking of erecting a new building in the near future. * * *

The National Paper Mills, Ltd., will shortly begin erecting a pulp and paper mill on the Fraser River, B.C., at a cost of \$150,000. They will begin on the manufacture of coarse grades of paper.

Machinery is being put in at the Lincoln Paper Company's Lybster mill at Merriton, Ont. No less than twelve carloads arrived a few days ago, the new paper machine alone costing \$60,000. * * *

Quebec, New Brunswick, Pulp, Lumbar and Lands Company, Ltd., St. Antoine Abbe, Que., has been granted a Dominion charter. Capital \$20,000. F. Toupin of Montreal and Charles Leahy of St. Antoine Abbe are incorporators. * * *

The St. Lawrence Industrial Company, Bersimis, Que., has sold 8,000 cords of pulp-wood to the Hammersmill Paper Company, the wood being shipped direct to Erie, Pa. The price is said to have been \$7.25 f.o.b. Bersimis. * * *

A company is to be incorporated under the name of the Montreal Kapatachuan & Rupert Bay Company, to build a railroad from Montreal to Hudsons Bay, passing through the counties of Hochelaga, Maisonneuve, Laval, Two Mountains, Argenteuil, Labelle a Pontiac. * * *

So far Stetson, Cutler & Company have not renewed the lease of the Mispec mill at St. John, N.B., and it is doubtful whether they will do so. Between the mill at Mispec and lumbering operations around Inglewood, the company employs about 600 men. * * *

The appeal in the case of Wertheim and the Chicoutimi Pulp Company was dismissed by the Privy Council in London. The judgment appealed against was amended by increasing the appellants' damages by £850. Each side pays its own costs. * * *

The Somerville Paper Box and Printing Company, Ltd., London, Ont., has been incorporated with a capital of \$250,000 to manufacture paper boxes and do all kinds of printing. C. R. Somerville and J. McK. McDermiad of

London and J. A. Phin of Toronto are charter members.

* * *

The Corona Lumber Company, Winnipeg, just incorporated under Manitoba laws with a capital of \$100,000, is authorized to erect or acquire saw mills, pulp mills, etc. W. Manchan and J. R. Higgins, Winnipeg, are members of the company.

* * *

The National Bag and Paper Company, Ltd., Ottawa, capital stock \$200,000, has a Dominion charter to make and deal in ground wood pulp, sulphite, paper, paper bags, cardboard, etc. John Frederick Booth, of Ottawa, and J. W. Hennessy, of Fort Coulonge, Que., are members of the company.

* * *

The Reg. N. Boxer Company, Ltd., New Toronto, Ont., has been authorized to carry on business in British Columbia as manufacturers of and dealers in wall-paper, wood pulp, glue, color, etc. Its office in that province will be in Vancouver, with Stuart Livingston as the company's attorney.

* * *

The Spanish River Pulp & Paper Company, Espanola, Ont., have elected officers as follows: President, W. J. Sheppard, Waubashene; vice-president, J. R. Barber, Georgetown; secretary-treasurer, W. J. Loveys, Toronto; managing director, J. B. Tudhope, Orillia. Business for the past year has been considerably better than in the year previous.

* * *

Ritchie & Ramsay, Ltd., New Toronto, manufacturers of coated paper will probably build an addition to their factory so as to install some new machines to take care of the rapidly increasing business of the company. The plant is being run at present night and day. At the annual meeting a few days ago satisfactory reports were presented. F. A. Ritchie was re-elected president and C. N. Ramsay vice-president and secretary-treasurer.

* * *

At Cornwall the Toronto Paper Co.'s mill is shut down for a month owing to the water being out of the canal, and the occasion is being seized to make ex-

tensive repairs, and to put in new drivers, etc. The St. Lawrence mill at Milleroches is not obliged to shut down, however, as the lake is not unwatered through lower canal levels. This company will, during the summer, install a new 136-inch machine, made by Bertrams Ltd., Edinburgh, Scotland.

* * *

Northern Engineering Works, crane builders, Detroit, have been placing orders for new tools and machinery consisting largely of lathes, gear cutters and milling machines, etc., for several months past, and the machinery is now being installed. They report a good volume of business on their books, the demand for their standard Electric Travelling Cranes being unusually good. The company has issued booklet No. 93, descriptive of foundry machinery installed by this well-known firm.

* * *

Twenty-one offers of marriage by ladies in one day is the record of Hugh Doyle, an employe of Booth's Mills, Ottawa. It is Mr. Doyle's duty as stenciller, to stamp the name of the consignee on all goods. About two months ago he wrote on the end of a roll of paper: "If any pretty young lady wishing to marry, sees this, kindly communicate with Mr. Hugh Doyle, Booth's Mills, Ottawa, Canada." The paper was finally received in a large newspaper office in England and the notice written by Mr. Doyle was printed in the paper. The result was as above.

* * *

E. Pullan's paper stock warehouse in Toronto was the scene of a serious fire on the 4th inst., whereby all the stock to the value of between \$4,000 and \$5,000 was destroyed, and the building badly damaged. The fire is attributed either to defective wiring or to a match packed in a bale of paper becoming ignited in going through the press. Mrs. Annie Barker, a rag sorter, was burned to death, being caught in the smoke when she returned to get her hat and coat. The fire does not interfere with business, the offices having been transferred to 6 Maud Street.

At the annual meeting of the Canada Paper Company the reports read showed that business was much more satisfactory than was the case a year ago. The recent additions to the plant, such as the new book and writing mill at Windsor Mills and the other improvements to the news and wrapping departments are working satisfactorily. Officers elected were as follows: President, Joseph Kilgour; vice-president, Sir H. Montagu Allan; directors, Hugh A. Allan, H. S. Holt, C. R. Hosmer, H. M. Molson, and Hon. Robert MacKay; Manager, H. B. Donovan, who will divide his time between the Montreal and Toronto offices.

* * *

The appeal of the Niagara Central Railway Company against the decision of the Board of Railway Commissioners on wood pulp from Thorold to Suspension Bridge, has been allowed, with costs. There had been a rate of two cents per hundred pounds on both the Grand Trunk and Niagara Central lines until early last year, when it was increased to three cents by either line. James Davy, who owns a pulp mill at Thorold, made a complaint to the Board of Railway Commissioners against this increase, as has been described before in these columns, and the commissioners ordered the restoration of the two-cent rate. Appeal was taken to the Supreme Court by the Niagara Central Company, on the ground that the Board had no jurisdiction in the matter of rates on shipments into the United States.

Arthur P. Tippet & Company, 4 Place Royale, Montreal, have lately been appointed agents by Crookes, Roberts & Company, of Sheffield, the large manufacturers of every description of paper makers' requirement, and also steel converters and refiners. They are men of the very highest reputation in Great Britain and elsewhere and do a most important business. They manufacture largely roll bars, engine plates, doctor

blades, and all other articles used of the best class, also manufacturing a special composition metal, known as Crookes composition metal, largely, if not exclusively used in making the highest class of papers. They have also been appointed agents by E. F. Lee & Company, who are very large exporters of china clays. Spencer's felts, for which they also are agents, stand without a peer in Great Britain.

* * *

Great interest is still being taken in New Brunswick in the request of the Tobique Pulp and Paper Company for permission to dam the Tobique River, which is strongly opposed by the fishing clubs. It has been shown that the erection of a mill would mean the investment of \$1,000,000 as against less than \$150,000 invested in the fishing industry. Meantime the matter remains undecided.

* * *

In the case of Oscar Villandre, Danville, against Joseph Villeneuve, of St. Roumald, in Quebec Superior Court for the sum of \$1,524.32, being the balance of an account amounting to \$8,493.04 for pulp-wood sold to defendant in the year 1907, the judge declared for the plaintiff, defendants to pay costs. The defendant contended that the wood he purchased was not for his own benefit, but for the benefit of the Joseph Villeneuve Company, of which he was the manager. The court held that when the transaction took place the Joseph Villeneuve Company had not been formed, and that the contention of the plaintiff that the defendant did not inform him that he was only purchasing the wood on behalf of a company was established.

* *

We have received from Ferdinand Flinsch, Offenbach-am-Main, Germany, a copy of their catalogue printed in English and French, illustrating a number of styles of surface coloring and enameling machinery for paper mills.

MOULDINESS IN PAPER PULP.

By Clayton Beadle and Henry P. Stevens.

From time to time we have had cases of mouldiness in pulp brought to our notice, which we have examined from the paper-maker's standpoint. Thus we had tried to trace the effects of these moulds on the quality of the pulp and to isolate some of the products formed by their action or found to be contained in such diseased pulp. So far, however, as the origin of the moulds is concerned, and the conditions which give rise to their propagation, we have relied on the observations made by mycologists both here and in America, who have been good enough to give us the results of their work, and to examine products we have brought to their notice. The results of this work, we think, will prove of interest, although, as yet, the information is very meagre.

The ordinary effect of dampness and fungoid growth upon cotton fibres in their raw state, wherein a spirally arranged mycelium is developed which ultimately causes the disintegration and death of the fibre, is, we believe, well known.

From time to time waxy substances have been found accumulating as scum from different pulps; they have never been closely investigated, and the reason of their mysterious appearance and disappearance is not yet understood.

From about 1900 onwards, repeated complaints have been made by the United States manufacturers of wood pulp from spruce wood, in regard to the appearance on stored wood pulp of a black and red mould, which considerably depreciated the value of the pulp. In 1905 Professor von Schrenk forwarded us specimens of mechanical wood pulp, showing the early stages of a black mould described as one of the species of *Demateæ* closely allied to *Hermodendron*; he had not then finally decided as to its exact generic and specific position. The question arose as to

whether the pulp was oxidized by atmospheric oxygen to oxycellulose (as was suggested by one of us) before the proper development of the moulds could take place. Oxycellulose artificially produced in the laboratory, however, showed hardly any result in the way of hastening germination.

Samples of mould spots in the above mechanical wood pulp were submitted through London agents to Scandinavian and Canadian pulp manufacturers, who stated generally that it resembled the mould with which they were familiar, and which they believe arises entirely from organic matter in the water, their experience being that a small mill in low water on a small river suffers much more from it than a mill on a large stream, in consequence of the greater purity of the water in the latter. This verdict, however, which is only based on popular belief, does not appear to apply to the American pulp above referred to.

We have frequently noticed the presence of mould in moist bleached straw pulp; in one case we found the mould had converted the pulp into 17 per cent. of soluble bodies containing sugars. Straw pulp being somewhat of the nature of oxycellulose, is, we should judge, more susceptible to the attack of mould than most pulps.

In November, 1905, we had a case of a mouldy Canadian pulp which gave considerable trouble in a paper mill. Spots developed and spread round some dirt and iron mould found in the pulp. Professor Von Schrenk, who examined these spots, stated that they were, in his opinion, in every way identical with smaller spots found in United States wood pulp where iron had accumulated due to drops of water containing iron rust dropping on the wood pulp from the roofs.

In 1904 and 1907 we had further cases of pulp brought to our notice, which gave rise to formation of gummy substances in the beaters and on the press-rolls.

In October, 1908, one of the large

paper mills in this country experienced difficulties which entirely interfered with the ordinary paper-making processes. As the paper, which consisted chiefly of Canadian mechanical wood pulp, passed through the press-rolls, an accumulation of gummy substances was produced upon the rolls, causing the paper to "lick up," giving rise to a lot of "broke," producing an inferior quality of paper both in strength and cleanliness, and generally interfering with the work. We found this gummy substance gave 6.4 per cent. of ash of a brick-dust color. If extracted with ether, it yielded an extract of a bright, clear, green color, associated with particles of a waxy appearance. On subsequent extraction with alcohol, it yielded a further quantity of clear fatty or resinous matter, partly of a bright green color. On treatment with carbon bisulphide in the cold for a few days, it gave rise to a clear blue solution setting to a jelly.

The analytical figures obtained were as follows:—

Ethereal extract	54.8
Alcoholic extract	9.5
Residue	34.7
Albuminous matter . . . . .	.6
Moisture and loss	6.4
	—
	100.0
	—

Part of the ethereal extract in the above analysis may be accounted for by resin soap added as a sizing material to the pulp.

When the gummy substance is boiled with weak caustic soda it changes to a lemon yellow, part going into solution. On carefully collecting the product from the press-rolls, drying and weighing, it was found to constitute not more than about one-eighth part of the weight of the paper produced (i.e., less than $\frac{1}{2}$ oz. per ton), in spite of which fact it gave serious trouble. We detected under the microscope result in the pulp, in the paper, and in the gummy substance, which we judged to bear a sufficient re-

semblance to one another to suggest a common origin.

Coniferous wood has a tendency to assume a deep blue color when attacked by fungi of various kinds other than those concerned with gumming, and this appearance is so very frequent in coniferous wood in America that the term "blueing" is used by lumbermen.

Massee observed this blue color in the particles of gum found on the pulp above referred to, and in a concentrated form found it to give the blue-black color to the gummy deposit on the press-rolls.

Professor von Schrenk—to whom at the same time we sent samples—stated that, as far as the cause of this stain is concerned, in all his experience with fungi attacking cellulose or woody fibres, he had found none except the fungi which produced green color, where a direct color is produced. In the case of the wood pulp stain which we had to deal with, the discoloration was entirely one due, in Prof. von Schrenk's opinion, to the presence of the mycelial threads of the fungus itself—in other words, the wood fibres themselves were not discolored.

Prof. von Schrenk had never before observed a gummy substance as found on the press-rolls. The action of the ferment produced by the fungus will, in very many instances, produce gums which may be colorless or highly colored. This gummy appearance led him to assume that the fungus which we brought to his notice differed from those which he had previously investigated. At the same time he observes that it is, of course, possible that, in addition to the fungus, certain bacteria got into the pulp, which, secondarily, produced the gum, as bacteria will do this very much more readily than fungi.

There are a number of fungi which grow on wood pulp, two of which, observed by Schrenk, are particularly objectionable on account of the stain which they bring about. One of these produces dark brown threads and spots,

which, in mass, make the pulp look black. The other one causes a yellowish stain which is by no means as objectionable as the black stain. The black fungus Schrenk finds to be a member of the group Dematici, and probably a member of the genus *Cladosporium*.

The spores evidently form with great rapidity, and fall off the sporophore very soon after forming, so that in the majority of instances they are found in countless millions on the black spots in the form of a loose powder. Schrenk carried on a great many cultures of this particular fungus in an endeavor to ascertain the vegetative conditions under which it develops. In spite of many attempts it was not found possible to propagate the fungus. He buried large numbers of fresh bundles of pulp in various positions in piles of the infected pulp, so badly infected that the entire pulp mass was almost black. These fresh bundles were left in position in immediate contact with the infected bundles for from two to eight months, in a warehouse where the humidity was almost 100 per cent., and where the temperature was frequently 100° Fahrenheit and more. After eight months the last bundles were taken out, and they were just as white as on the day on which they were put in, showing that no spread of the growth could be promoted by mere contact with fresh material. He found the fungus very frequently on dead leaves and sticks in the country immediately adjacent to the warehouse, so that it is evidently very common in the district.

Careful examinations were made of the water used in the manufacture of the pulp in the various stages of its preparation, but without affording any clue as to the conditions favoring the development of this stain fungus.

In addition to this one form, there are, so Schrenk informs us, probably a half-dozen others, the principal one being *Stachybotrys alternans*. This particular fungus forms velvety-looking,

thick, black blotches on the pulp, differing from the one already described in possessing a solid velvety appearance, the first described is more sparsely scattered and dusty in appearance. This second fungus, furthermore, spreads over the pulp with great rapidity, while the first more virulent and objectionable form seems to be more or less localized in spots.

Nothing further was done by Schrenk with the pulp fungus, because it disappeared almost as rapidly as it had appeared. It occurred in several large warehouses at two or three points in the Northern States. These warehouses were emptied, and the stained pulp was used. One of the warehouses was steamed out, after the worst parts had been removed, and since that time has been repeatedly filled with fresh pulp, none of which, however, has shown the slightest sign of any of this peculiar stain.

Up to September, 1908, we had never met with an instance of mould in chemical wood pulp—at least, we had not traced it to paper made entirely of chemical wood pulp. But on examining a pure chemical wood pulp paper, made about this time in Scandinavia, it showed under the microscope the presence of mycelium.

The question arose as to what stage this could have developed—Was it present in the wood used for making the pulp, or did it develop in the pulp after the manufacture or in the paper?

Mr. Massee's investigation and report make it clear that the mycelium and spores of a fungus—*Cladosporium* sp.—were present in the paper, and judging from their appearance, were undoubtedly present in the cells of the wood before it was chemically treated. The dark-colored walls of mycelium and spores are mainly converted into a substance allied to chitin, and are extremely resistant to acids and alkalies alike. It is therefore possible to remove all the woody tissues of a plant by drastic measures and leave the fungus mycelium intact. The spores of fungi could

not germinate after undergoing the chemical treatment necessary for the preparation of chemical wood pulp. There is, according to Massee, no evidence of fungi having developed in the pulp after chemical treatment.

In view of the recent investigations undertaken by Cross and Bevan on the heart damage of jute, we thought it would be of interest for this matter to be investigated further. On submitting a sample of heart-damaged jute to Kew, Mr. George Massee stated that the blackening of the fibre is due to the dark-colored mycelium of a fungus, but although the specimen was placed under favorable conditions for development, even after a considerable period no fruit appeared, consequently the fungus could not be identified.

It was suggested that presumably a certain amount of sweating or heating takes place in the centre of the bundle which enables the fungus to develop in the fragments of cellular tissue not cleared from the fibres.

An instance of mould in rag paper has just come to our notice of a curious nature. The paper in question was a well-known make. A particular batch was found to uniformly change, on keeping, from white to a coppery tint. On inspecting the paper afterwards it would appear as though the paper had been purposely tinted. No explanation could be afforded of this change from chemical analysis, as the paper was quite free of metallic or other impurities that might account for it. On examination under the microscope, however, it appeared that the fibres themselves were not colored, but covered and mixed with moulds of a growth of a yellow color, sufficient in quantity to account for the change in color in the paper. The paper was sized with gelatine, but whether these growths were contained in the rag or half-stuff, or derived from the gelatine, it is not possible to say. The paper was submitted to examination at Kew, but no germination took place. The case requires further investigation.

We have attempted to cultivate such moulds as appear in wood pulp by damping mechanical wood pulp and placing same in sealed tubes. No spread of growth appears to take place by damping with distilled water, as when a piece of ordinary pulp is placed in contact with a minute fragment of mouldy pulp. Even with already mouldy pulp the process appears to be arrested at a certain stage, but when in lieu of distilled water a nutrient medium is used such as Ornelianski's preparation, a ready development takes place in all cases observed by us, the mould spreading whether wood pulp be present or not. It might, therefore, be concluded, in some cases at least, that the mould growth is dependent upon the presence of nutrient substances contained in the wood pulp, and is arrested when these substances are used up, and that the wood per se is not a favorable medium for development.

Whether or not these moulds depend primarily upon the presence of the wood or upon the extraneous nutrient substances, the development is accompanied by a distinctly depreciating effect upon the pulp, which, as will be seen, profoundly alters it both chemically and physically.



As an interesting comment on the recent abrogation of the German surtax by the Dominion Government it may be stated that dozens of agents for German houses have been in Montreal and Toronto looking for orders for their goods. The chief lines represented are parchment, leatherette, tissues and fancy papers. British paper men are also working hard for the trade particularly in writing, ledger and envelope paper. Enquiries also are to hand from Germany for Canadian pulp and box boards.

The Nelson Paper Company of Minneapolis will establish a warehouse in Calgary and carry a complete stock of roofing and building papers. E. P. Barker will have the management. The president of the company is B. F. Nelson.

**SULPHATE PULP AND KRAFT
BROWN PAPER**

By **Martin L. Griffin** of the **Emerson
Laboratory, Springfield, Mass.**

During the last two years or thereabouts many manufacturers of pulp and paper have become interested in sulphate pulp and kraft paper, on account of the attractive qualities of this pulp for many uses and particularly for the very attractive wrapping paper.

Sulphate pulp is not a new product by any means. It is about as old as sulphite. As early as 1884 one Carl Ferdinand Dahl of Danzig, Prussia, took out a patent for the production of the complex lye with which wood may be cooked, and which has since come to be known as the sulphate process.

The reason why pulp so made is called sulphate is not because sodium sulphate is the active cooking agent, but because the losses of the active soda salts are replaced by this. I presume the inventor had in mind only the economy in using the cheaper chemical to restore the losses, rather than any distinct advantage in the quality of the pulp produced.

The difference between what is commonly known as the soda and sulphate processes is, that in the former the cooking liquor is caustic soda exclusively and the losses in recovery are made up from soda ash, which with the recovered black ash is treated with lime to causticize, completing the cycle of operations.

In the latter process we have a complex alkaline cooking liquor containing a large proportion of caustic soda, sodium sulphide, which is strongly alkaline, and sodium sulphate. This complex mixture is not the result of directly mixing these chemicals before cooking, but it is a product largely of the recovery process in this way, namely, if we prepare a solution of caustic soda from soda ash by treating with lime and add a quantity of sodium sulphate equivalent

to the losses in recovery, and with this boil the wood, when the black liquor comes to be evaporated and incinerated, there will be a reduction of the sulphate to sulphide and carbonate. In the subsequent treatment with lime the carbonate is converted into caustic.

It is quite possible to cook wood thoroughly by this process so as to make an easy bleaching pulp, but for kraft papers this is not desirable.

During all these years this process has not made any considerable growth, being principally confined to Scandinavia. So far as I know there are no mills operating this process in the United States and only two or three concerns in Canada who have recently taken it up. There are several reasons for this, one is the offensive odor from the spent liquors. These are so objectionable that a mill cannot be operated in any populous community, and I understand there has been legislation at times in Scandinavia in reference to this. The second reason is, that when it comes to cooking the spruces and pines, our manufacturers on this side of the Atlantic have almost without exception so far adopted the sulphite process, for the reason that it is simpler, the cost of plant less and the yield greater. The soda process has been used almost exclusively on poplar and some hard woods.

Referring again to the use of sodium sulphate, this salt cake as it is sometimes called was almost a waste product and is to-day. Originally this cake contains more or less acid and one important step in the process was to neutralize this free acid with the lime mud as it is sometimes called, meaning thereby calcium carbonate resulting from the previous treatment with lime, and if the proper proportions were calculated it was quite possible to prepare a lime sulphate which it was claimed could be used as a land plaster. If the acid salt cake were not so neutralized there would be a considerable loss of caustic soda to sulphate in neutralizing this excess.

It does not appear that this process has been worked primarily for any other reason than for the low cost of chemicals. In the course of time, however, it has doubtless been found abroad that this alkali pulp was well suited for the manufacture of high grade wrapping papers, and so far as I am informed this process was practically the only one making alkali pulp. It naturally follows then that this pulp should be used for kraft paper and comes to be known as kraft pulp.

The process of isolating pulp is a disintegration of the wood by a hydrolyzing and solvent action of the chemicals on the intercellular matter. Both acid and alkali processes exhibit in different degrees the result of this action. The more the pulp is hydrated the harsher and more transparent it becomes when made into paper. As a general proposition the less of this action we get, the softer and more opaque the paper, but these factors will always be joined in some degree in all papers.

We do not know therefore of any patent claim that sulphate pulp shall be used in the manufacture of kraft paper. So far as the essential qualities necessary in a pulp to make kraft paper are concerned, if these can be obtained in any other pulp, such pulp may be used for this grade of paper and be called kraft paper without equal propriety.

I have been asked by manufacturers of sulphite recently if their mills could be remodelled to make sulphate pulp. There is nothing whatever in common between these two processes, except the preparation of the wood, until the stock reaches the blow pit; the liquor making, cooking and plant bear no resemblance to each other, and practically no part of the one can be converted into the other. To sulphite manufacturers who would like to enter the kraft market, I would suggest a modification of their process so as to get a strong and soft pulp. This can usually be done with no changes of plant. The color of the stock will be much lighter but this is

no objection, on the contrary it is in its favor.

As is well known kraft paper is made by refining the stock in kollergangs or edge runners, as they are sometimes called. This treatment is fundamentally different from the usual process of beating. It rubs out the fiber without the shortening and hydrating action of the beater roll. The strength, pliability, and opacity are retained.

Much of this paper is made on what is known abroad as a Yankee machine, though why they should be called by this name is a mystery to me, since to the best of my knowledge and belief Yankees do not appear to be the inventors or users of them. The Yankee machine has one very large drier, against which the soft wet web of the paper is pressed in drying, giving it a highly smooth finished surface on one side and a rough felt-marked surface on the other. These machines are also built so that the paper can be dried in the usual way. For many uses such papers finished on one side only have distinct advantages. It is in these two points more than anywhere else American and Canadian manufacturers fall down in any attempt to make a paper as good as the European kraft. It cannot be done successfully in any other way.

There seem to be certain well defined differences between manufacturers of paper in European countries and those in the United States and Canada. Our manufacturers have developed the mechanical side of paper-making for production, wonderfully. Our digesters and machines are marvels of capacity, tonnage is the goal, while foreign manufacturers are pleased to devote more skill and painstaking care to produce a product of greater merit. When, therefore, any new foreign paper product of such merit as kraft comes to our markets, our manufacturers naturally want to make it, but will not follow the careful methods employed abroad. Kraft paper is such a good product that its

value will be more and more appreciated.

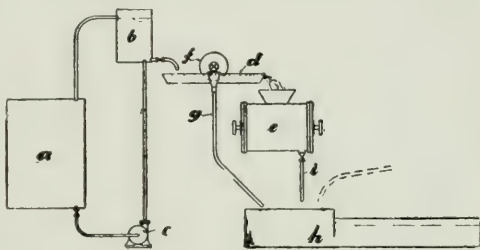
In the manufacture of wrapping paper and wood board, there should be a persistent effort to process wood into the thinnest, strongest and most opaque and pliable paper possible, and at the same time sacrifice as little of the wood substance as possible. In this way we shall consume the minimum of raw material, reduce the amount of objectionable waste to pollute our streams, give labor a larger share in production and make a better product with a greater margin of profit.



REGULATING THE DENSITY OF PULP.

Bertrams, Ltd., Edinburgh, are interested in a patent, the object of which is to provide means whereby the density of the pulp passing to the refining engine may be regulated as desired, and further whereby the water extracted from the pulp to increase the density may be added again to the pulp after leaving the refining engine and before passing to the machine, thus avoiding all loss. Use is made of a drum washer or similar apparatus between the pulp stuff chest and the refining engine. That is to say, above the machine pulp stuff chest is arranged an elevated stuff box into which the pulp from the stuff chest is pumped. Between such high stuff box and the refining engine is arranged a trough in or over which is adjustably mounted a drum washer or the like. From the high stuff box the pulp flows into the trough at one end through a suitable valve-controlled pipe or spout. At the other end of the trough the pulp flows into the refining engine. With the pulp made to a density suitable for a thick paper and requiring to be thickened for a thinner paper, the drum washer is put into operation, which has the effect of removing the excess of water which is led away by a pipe to the back-water box of the machine or other point where it may again mix with the pulp after passing through the re-

fining engine. The pulp is thus of the same density after it has passed through the engine as when in the stuff chest, while the density is increased during the passage of the pulp through the engine. To regulate the amount of water discharged the trough or drum washer may be raised or lowered, or the speed may be varied, the essential requirements being to extract the water from the pulp at a point between the stuff chest and the refining engine in order to vary the density. The invention is illustrated in diagram on the accompanying drawing, wherein a is the machine stuff chest, b the high stuff box, c the pump for pumping the stuff from the stuff chest into the stuff box; d is the trough into which the stuff is delivered from the stuff box and e is the refiner; f is the



drum washer arranged adjustably in the trough d; g is the pipe by which the water removed by the drum washer is conveyed to a receptacle or sand table h wherein it may mix with the pulp which has passed through the refiner. The pulp after leaving the refiner passes into the receptacle through a valve controlled pipe i. By the raising or lowering of the washer so as to cause it to dip more or less into the pulp, the amount of water extracted may be increased or decreased. The same effect may be obtained by raising or lowering the trough. In lieu of all the extracted water being added to the pulp, a portion only may be added.



The Book Publishers section of the Toronto Board of Trade have elected S. B. Gundy, chairman, J. H. Charles, vice chairman, F. G. Morley, secretary-treasurer.

WESTERN CANADA BAG, ENVELOPE AND BOX BOARD COMPANY.

The plant of the Western Canada Bag, Envelope, and Box Board Company, Ltd., some particulars of which have been given in previous issues, is now, we understand, in process of construction, about eight miles from Vancouver, and is booked for completion by December 1. Officers are as follows: Greely Koltz, president and fiscal agent; Norman Caple, vice-president; J. F. Garvin, secretary and treasurer; Noble Heath, superintendent of construction; Kendell Sewell & Company, auditors. The new plant, it is anticipated, will employ about 200 hands, and the output represent over \$250,000 per year. The market will extend east to Winnipeg, in which territory there is a large demand, and which has to be supplied at present from the Eastern Provinces and the United States, paying heavy freight rates. The tendency of the times to put up cereals and other perishable goods in cartons instead of in bulk is looked for to create a heavy demand for the sort of goods to be turned out. The necessary water will be obtained from the Brunette River, which passes through the property recently acquired by the company at Sapperton siding. The organizer of the company was Greely Koltz, who has promoted several more or less successful companies in the United States. It was he also who organized the British Canadian Wood Pulp and Paper Company, which is now said to be in successful operation at Port Mellon, B.C. This we suppose may be set down to his credit, although one of the Vancouver papers recently came out with a very unflattering pen-portrait of the gentleman. Incidentally it points out "the effrontery of this promoter in framing up a proposition by which a one-tenth owner in the company is given complete control, which it alleges to be the fact through the manner in which the articles of incorporation are drawn up.

CAUSES OF EXPANSION IN PAPERS.

All papers are more or less liable to expansion after being made on the machine; the same applies to hand-made papers. The stronger and longer the stock from which the paper is made the greater will be the expansion. So the amount of expansion will depend a good deal upon the quality of the fibre from which the paper was made, as well as its treatment on the machine. For instance, long, slow heating will cause paper to expand. By beating the stuff quickly, or by cutting it up as quickly as possible you can overcome the expansion quite a lot, and the quicker the stock is cut the less will be such expansion. In making a paper free from expansion or contraction it is well to have it not lie too closely together on the machine wire, for the "wilder" the appearance of the sheet usually the less change it shows after being made. In a paper made to bulk well there are considerable air spaces, and the expansion of the fibres in such a paper will not cause the sheet to change in size as it would in a paper free from air space. In ordinary printing paper the stretch is about $1/32$ of an inch in the machine direction and $4/32$ of an inch in the cross direction; this is a paper that is fairly well sized, and in a paper of the same finish, but without size the stretch is less, being hardly measurable in the machine direction, while it is about $2/32$ of an inch in the cross direction. A paper made from rag stock, beaten slowly, so as to carry the water well, will show much greater stretch. In a wet atmosphere paper acts as it does on the machine; if moisture is present the paper will show great expansion, but if dry air is present the change in the paper will be less noticeable.



The Lincoln Paper Mills Company have elected George Burch, president, W. M. Shea, secretary-treasurer, and W. D. Woodruff, general manager.

BRITISH MARKETS.

Low prices continue to prevail for mechanical wood pulps, and for any improvement to be effected it seems a curtailment of production is necessary. Business is reported for next year delivery and also over 1912 favorable to buyers, says World's Paper Trade Review.

An improved demand for chemical pulps is reported, and prices of well-known brands of sulphite show more firm business.

The market for chemicals is steady.

There has been improvement in the demand for home and foreign rags and prices are firm.

**RAG AND PAPER STOCK MARKETS.**

Montreal, April 7th, 1910.

Dealers in rags and paper stock report a rather disturbed outlook. In the United States particularly the situation is unsettled. On account of the uncertainty in the tariff situation recently a large quantity of wood pulp and other material was taken across the border from Canada, the fear being that a higher tariff might be imposed against such importations. As a consequence the quantity of stock now held in store there is unusually large, and it is probable that shipments will as a result be light for some time to come. It may be worth mentioning that no very considerable quantity of the shipments mentioned were the result of current purchases, the bulk being of contracts which have been running for some time. The situation in the United States is rather uncertain, and anything which affects the United States generally reflects to a greater or lesser extent upon Canada.

The entire market for rag and paper stock holds steady, and prices range about the same as formerly. Local conditions continue good, and prospects generally in Canada are all that could be asked for.

Prices are as follows:—

	Per 100 lbs.
Shirt Cuttings—	
White	\$4 50 to \$5 50
Unbleached Cottons ..	4 25 to 4 75
Light Print Cuttings..	3 00 to 3 50
Shoe Rag Cuttings—	
Bleached	4 00 to 4 50
Mixed white	3 00 to 3 50
Light print	2 75 to 3 00
Overall Cuttings—	
Blue	3 25 to 3 50
Brown	2 00 to 2 50
Paper Shavings—	
Hard white	2 00 to 2 25
Soft No. 1 white	1 50 to 1 75
Soft No. 2 white	1 25 to 1 30
Mixed shavings	0 55 to 0 60
Ledger stock	1 00 to 1 25
Printed book	0 90 to 1 00
Common waste	0 35 to 0 45
Roofing Stock—	
No. 1 satinettes	0 75 to 0 80
No. 2 satinettes	0 45 to 0 50
Sundries—	
Old bagging	0 60 to 0 65
Manilla rope	2 00 to 2 25

**MONTREAL PULP AND PAPER MARKETS.**

Paper makers and dealers in paper report an active trade throughout all their lines. One firm made an exception in the case of wrapping papers, saying that the demand for these had not been so good of late, and that stocks were increasing somewhat. The experience of other firms, however, did not seem to go to show that this was a general condition throughout the markets. One concern reported that it was quite impossible to keep up with orders, either for news or the various commercial papers. As to certain sheathing papers, in use extensively through the North-West, whither settlers are flocking in thousands, the demand was simply enormous, and, although carload upon carload had been shipped, the firm was still up to its eyes in work, and the out-

(Continued on page 106)

Young Man, aged 32, mechanical engineer, experienced in organization, administration, finance, purchasing, accounting and plant designing, occupying responsible position, will consider responsible offer. Learned the paper manufacturing business from laborer to the top. Lumbering, railroading, machinery manufacture. Have satisfactorily handled several hundred men in disorganized and difficult situations. Full investigation. Apply Box 14, Pulp & Paper Magazine, Toronto.

Machine Tender Wanted on Book and Colors. Steady job. Apply Pulp & Paper Magazine, Toronto.

AGENTS WANTED.—I want agents to sell the Moreau Pulp-Wood Barker in all parts of Canada and Nova Scotia. Liberal commission paid. Communicate with C. Manseau, selling agent, Drummondville, Que., Canada.

WANTED

Position as superintendent or builder of Sulphite Pulp or Wood Pulp Paper Mill. Wide Experience abroad. (U.S., Scandinavia, Russia, etc. as well as in this country. Highest testimonial for economical construction. Consumption of sulphur in last mill built 8%. (As against 12 18%.) Brown Mech. Pulp and Paper (= imitat "Kraft"), a specialty. Correspondence solicited. Address, R.S.T. c/o this paper

WANTED

Correspondence with parties interested in starting a mill for "natural" brown steamed wood-pulp and paper. The advertiser is a specialist in this line from Scandinavia. Highest testimonials. Address C. E. B., c/o Pulp & Paper Magazine of Canada.

The Sault au Recollet Paper Company's building and roofing mills at Sault au Recollet, Que., are closed down during extension of plant.

NEW BRUNSWICK FORESTS.

The recent address of James Lawler, secretary of the Canadian Forestry Association, before the Canadian Club at St. John, was an able presentation of the case for forest preservation, and was moreover peculiarly apt because of the approaching extra interest in the subject on account of the Canadian Forestry Convention being held in Fredericton so shortly afterwards. New Brunswick has a very extensive area of Crown lands, in comparison with the size of the province, but not enough is known about them. The public domain contains some land set aside for timber that is better fitted for agriculture, and more, probably, that is set aside for agriculture whereas it is fit for nothing except timber. The value of the Crown forest lands is only roughly known. Many of them are of great value. The cost of giving effect to all the legislation extant would be considerable, no doubt, but before action is longer deferred on that score an estimate of the cost should be made with care and published.

The province, if it begins now, can get along without tree-planting, provided it makes good provision against fire, gives nature a fair chance to reforest the denuded areas, and provide for scientific lumbering on Crown lands. Under an enlightened Crown land policy the public domain would grow in value and yield an increasing revenue. Before the people's forests can be well administered it is necessary to realize how valuable they really are, how important they are to the province, and how vitally necessary it is to give them economical yet progressive management. Mr. Lawler's address was full of good suggestions along these lines.



—J. L. Morrison Co., Toronto, agents for Karl Krause, Leipzig, manufacturers of paper-making machinery, state that that firm shipped last year no less than 6,158 machines to the trade throughout the world.

INTERNATIONAL STRIKE.

A serious strike is now being carried on by union employees of the International Paper Co., its mills at Corinth, Fort Edward, Glen's Falls, Niagara Falls and several others being affected and having to close down. At Corinth last month a mob of three hundred men armed with guns and clubs, attacked a train conveying strike breakers, and dynamited it. At Fort Edward a large

storehouse was burned. It was supposed that at the collapse of the strike in 1908 the unions had been disorganized, but since that time it is understood they have been working hard to get into harmony, and they are now working together. The results of the strike are likely to be serious, especially in view of the fact that the mills are losing the benefits of the present high water, and that the droughts of recent seasons may be repeated.

SECOND HAND ENGINES FOR SALE

1 **Brown Engine** 20 $\frac{1}{2}$ x 54. 62 R.P.M. 300 H.P. 16 ft. x 31 $\frac{1}{2}$ in. fly-wheel, complete with Bulkley Syphon Condenser and usual valves, fittings and indicator piping.

1 **Brown Engine** 13 x 34. 95 R.P.M. 70 H.P. complete with usual valves, fittings and indicator piping.

Apply for Prices, etc.

1 **Peerless Engine** 11x10, 35 h.p., 283 r.p.m. two 4' x 12 $\frac{1}{2}$ " fly wheels, complete with usual valves: fittings and indicator piping.

1 **Slide Valve Engine** 10 5-16 x 24. 84 R.P.M. 10 ft. x 16 in. fly-wheel, complete with usual valves fittings and indicator piping.

MONTREAL
TORONTO

CANADA PAPER CO.
LIMITED

WINDSOR
MILLS, P.Q.

The Millspaugh Patent Revolving Suction Rolls are now offered to the Canadian trade manufactured in Canada by the Waterous Engine Works Co., Brantford, Ont. We will be pleased to receive your inquiries at Sandusky.

THE SANDUSKY FOUNDRY AND MACHINE CO.

Sandusky, Ohio.

(Continued from page 103)

look for the future was not such as to encourage them to think that they would get any closer to the orders they had ahead of them. Other firms report that they have been compelled to turn down business which is in every way desirable for the simple reason that their mills are all occupied with orders in hand. It is impossible for them to promise to deliver goods in less than about a month, so that they have had to lose many orders. The fact that they lost the orders, however, indicates that other mills were not in quite their position and were able to undertake them.

Prices of pulp and paper hold about steady. While sales of pulp would be made at \$16 per ton, it is claimed that this does not give a proper idea of the market, inasmuch as such current sales are merely incidental, the bulk of the business being done on contract at \$1 to \$2 per ton more. Some even claim to be delivering on contracts at \$19. The rest of the market is steady and firm, No. 1 manilla being quoted by some at fully 25 cents more than prices mentioned.



SHERBROOKE MACHINERY COMPANY.

The Sherbrooke Machinery Company, Sherbrooke, Que., recently shipped one of their Deckers or feltless Wet Machines to the Spanish River Pulp & Paper Company, Ltd., Espanola, Ont. The International Paper Company have already thirty or forty of these machines in operation, and that they are giving the fullest satisfaction is evidenced by the following letter written by Mr. Edwin Riley, divisional superintendent of the Rumford Falls, Maine, mill to Mr. Howard Parker, president of the Sherbrooke Machinery Company:

"Dear Sir,—Replying to your question as regards the working of the new feltless wet machines which you supplied us at Otis, we would say that they are the best machines we ever saw both

mechanically and otherwise. The special arrangement which you have for taking care of the thick pulp which accumulates back of the couch roll we think makes it possible for this machine to produce at least one-third more than the old style of machines. Would say in conclusion, that we are very much pleased with these machines and trust you will continue to make improvements in the future as you have in the past."

The above named company also have recently installed one of their Pneumatic Save-Alls in the E. B. Eddy Company's mill at Hull, Que., and have just received another order from J. R. Booth, of Ottawa, Ont.

During the last month they have shipped two of their Three Roll Wet Machines to the Quebec and St. Maurice Industrial Company, at La Tuque, Que. These are similar to the machines which have been recently advertised in this magazine.

We are glad to note that at the present time the company have a great many orders ahead and are working nights.



DIRECTORY OF PAPERMAKERS.

The 1910 edition of the Directory of Papermakers of the United Kingdom is to hand. The scope of this book and the accuracy with which it has been compiled are well known, and the present issue is no exception to the rule. We will, therefore, only briefly summarize its contents as follows: Alphabetical list of paper and millboard makers of the United Kingdom; paper enamellers; papermakers' representatives; London wholesale stationers; lists of mills variously arranged; classification of makes with makers names; sizes of papers; paper trade customs, etc., etc. The directory is published by Marchant, Singer & Company, London, at one shilling or 1s. 7d. abroad, nett.



Two St. John, N.B., daily newspapers, "The Times" and the "Daily Telegraph" have amalgamated under the name of the Daily Telegraph and Sun.

The Pulp ^{AND} Paper Magazine of Canada

Vol. 8.—No. 5.

TORONTO, MAY, 1910.

{ CANADA \$1. A YEAR
{ SINGLE COPY 10c.

THE PEACE-MAKING KING.

It is consistent with the dullness of humanity that the greatest natures are

den taking off has been such a stunning blow to the people of the British Empire. Not that kind Edward lacked the love and confidence and loyalty of his people, to



THE LAMENTED KING EDWARD VII.

either not understood or not appreciated till they have passed beyond the reach of the voice of praise or blame. We feel this in the death of King Edward, whose sud-

den taking off has been such a stunning blow to the people of the British Empire. But now that he is gone we feel that his power for peace

and good will among the great nations of the world was not fully understood. That it was not appreciated by the people of the home land, must now be sadly confessed, for realizing too late that distress, more or less concealed, over the party wrangles in the realm during the past year, hastened his death, those who led in these conflicts would no doubt admit their excesses, and would wish that they had made their King an autocrat for the purpose of reforming the Lords. There is no question that a revision of



George V. Successor to Edward VII.

the constitution by King Edward would have satisfied the vast majority of the people of the realm. If it could only be known what he would have proposed in amending the constitution, it would even now be the safest way out of the darkness of the political eclipse.

Among the splendid virtues of King Edward there are two that must stand out

more radiant before humanity at large as time passes—one was his profound and unfeigned respect for his father and mother, and the other his sustained benevolence, or, to put it in another light, the complete suppression of the spirit of retaliation. It was this that made him by nature fitted to be a peacemaker among the nations. As to his first-named good quality of reverence for parents—a virtue which the Caucasian race seems to be losing in modern times—there could not have been a more beautiful illustration of it than in the choosing of his title. In his simple but dignified first speech on coming to the throne, he said, referring to the death of his “beloved mother the Queen”: “I know how deeply you and the whole nation, and I think I may say the whole world, sympathize with me in the irreparable loss we have all sustained. I need hardly say that my constant endeavor will be always to walk in her footsteps. . . . I have resolved to be known by the name of Edward, which has been borne by six of my ancestors. In doing so I do not undervalue the name of Albert which I inherit from my ever to be lamented great and wise father, who, by universal consent is, I think, deservedly known by the name of Albert the Good, and I desire that his name should stand alone.”

In the same speech, he said: “I am fully determined to be a constitutional sovereign in the strictest sense of the word and, so long as there is breath in my body, to work for the good and the amelioration of my people,” and in the light of his short career as King, and of his dying words, “I think I have done my duty,” we know that his pledges of love and duty were fulfilled.

QUEBEC'S PULPWOOD POLICY.

In this issue is given the substance of the Quebec Order-in-Council governing the cutting of pulpwood on Crown lands in that province. The export of pulpwood from Crown lands is prohibited from and after May 1st, 1910. Despatches from Washington tell of the "disappointment and surprise" caused by this proclamation. That it would cause disappointment of the industrial interests affected was expected, but that it should cause surprise is not easy to understand on this side of the border, since Premier Gouin proclaimed his intentions last year, and since, in the conference between President Taft and Finance Minister Fielding, the latter made it perfectly clear that the Dominion Government would not attempt to interfere with the unquestionable right of a province to control its own Crown lands. Nor did the Dominion Government itself, for that matter, bind itself to any limitation of its own right to legislate on trade matters touching exports in the future.

For several years past the various States of the Union have shown a laudable anxiety to conserve their forest assets and their water powers, and are doing their best to restore that which many of them have lost. It is hard to believe that any responsible member of the United States Government could authorize a complaint almost involving a charge of bad faith because a Canadian province, in pursuance of a policy publicly declared before the recent conference, should seek to do for its own self-preservation what the American States are urged to do as their most urgent and patriotic duty. Does the Washington

Government expect that Quebec or any Canadian province will assist the restoration of United States forests at the cost of its own self-destruction? Whatever its Government may do one cannot think the people of the United States are so unreasonable, or that they will long be led on such a path at the clamor of special trade interests which presume to set themselves before the interests of the nation. If a general trade treaty is to follow the friendly agreement recently made there must be a spirit of reciprocity which is not advanced by such complaints as that made against Quebec.

However, the first effect of the new Quebec policy is to annul the countervailing duty heretofore charged against Quebec Crown lands pulpwood as appears by the following despatch from Washington, dated 9th May:—

"The United States Treasury Department has made a decision removing the countervailing duty of 25 cents a ton on print paper made from pulpwood cut from the Crown lands in the Province of Quebec.

"Quebec had imposed an export tax of 25 cents a cord on pulpwood cut from Crown lands. The recent action of the Province in prohibiting exports of pulpwood naturally annulled the tax on such exports. The Treasury Department's decision simply meets the new situation, removes the countervailing duties of 25 cents a ton on print paper and leaves pulpwood, wood-pulp and print paper in the same situation in Quebec as has been prevailing in the Province of Ontario, which also prohibits the export of pulpwood.

"From both provinces print paper from pulpwood cut from Crown lands now pays a tax of \$3.75 per ton, the regular duty, plus the additional duty provided by the tariff bill, bringing the total duty on a ton of print paper from Canada to \$5.75.

"The same restrictions exist on the importations of wood-pulp as have existed before from both provinces. Wood-pulp and pulp-wood cut from private lands can be imported into the United States entirely free of duty, but the tariff on print paper made from pulp-wood cut from private lands is \$3.75 a ton as provided in the Payne tariff.

The ruling may tend slightly to increase the price of print paper and pulp to the extent that the Quebec trade is restricted. Such restrictions will only tend to increase the cost of paper not only to the United States consumer, but to the United States manufacturer, and all such increases will hasten the process by which the natural advantages of Canada will be proved, and the industry built up on such a foundation that this country can permanently hold its own against the world in the export of pulp and paper. The latest ruling may inconvenience some individuals on both sides of the Quebec border, but so far as its effect on the general progress of the Canadian pulp and paper industry is concerned, it is like Xerxes lashing the Hellespont.



ONTARIO'S NEW TIMBER POLICY

The new timber policy recently announced by the Ontario Government will be bad news to the mere speculator and will doubtless lead to active operation on limits which have been idle for years. It is a development of the idea that the people should have a share in the profits accruing from natural resources and from the increase in their value. There is an increase in dues and ground rents. The timber dues are raised by 50 cents per

1,000 feet board measure, on pine and \$30 per 1,000 cubic feet on square board timber, while ground rent goes up from \$2 per mile to \$5. In cases of the transfer of limits a fee of \$5, instead of \$1, per mile will be charged. The cost of fire-ranging on licensed territory will, in future, have to be borne by the licensee, under the control of the Province. Heretofore the Crown paid one-half of this expense. The changes, it is estimated, will mean an additional revenue to the Province of approximately \$300,000 per year.

Another important change follows the lines adopted by the Government of Quebec, that is, a fixed period of ten years during which the dues shall be unchangeable. This is designed to give stability to the regulations, confidence to the industry and an assured basis for financing its operations. It is regarded as significant that the two premier provinces are closely aligning their timber and pulp-wood policies.

The dues on old limits, it may be explained, were last increased in 1887 by 25 cents per thousand feet board measure, which brought them from 75 cents per thousand feet board measure up to \$1. A long period has elapsed since that increase of 25 cents, and they are now being increased by 50 cents per thousand feet board measure, or double what they were increased in 1887. This will bring the dues on pine sawlogs up to \$1.50 per thousand feet board measure. Recognizing that the making of square and waney board timber is a wasteful form of manufacture, the Government has made a substantial increase in the dues on square timber. Then it was considered too, that hemlock, which is coming more into general use, should pay additional duty,

and they have added 25 cents per thousand feet board measure to the hemlock dues.

In regard to the question of ground rent, the Government felt that on old licenses, which only paid a ground rent of \$3 per mile, there should be a substantial increase. In 1887 the ground rent was increased from \$2 to \$3 per mile—an increase of \$1 per mile. They have now increased the ground rent from \$3 to \$5 per mile—an increase of \$2. There will thus be but one rate of ground rent all over the Province.

The Government felt that as its interest in the protection of licensed timber was small compared with that of the holder, only \$1.50 per thousand, the cost of fire-ranging, should be borne by the licensee. The Government, however, will continue to have some control over the men whose duty it is to look after protection from fire, and will have the right to remove such as do not do their duty. In the event of neglect of proper precautionary measures by holders of limits, the Government will place rangers thereon, charging their wages and expenses to said holders and withholding licenses until such be paid.



U. S. NEWSPAPERS AND CANADIAN PULP AND PAPER

A few Bourbon-like people in the United States believe, or affect to believe, that the dependence of that country upon Canada for continued supplies of the raw material for paper making is exaggerated, and that the former has plenty of pulpwood in reserve to meet all probable requirements in the future. That this optimistic view is not shared by the newspaper publishers, who have a

very special interest in the matter, is evidenced by recent effusions from their Committee on Paper. In a circular issued after the annual meeting of the Association on the 28th ult., it is stated:

"As a result of a strike in the mills of the International Paper Company, the price of newsprint paper for transient needs has advanced approximately \$9.00 per ton within the last five weeks. A condition approaching a paper famine is imminent. The Commissioner of Corporations reports that the stock on hand at paper mills on March 31st, 1910, was 19,907 tons, which is less than a six-day supply for the newspapers. Within three years, the newspapers have encountered three such panics in paper supply. Aggravating this situation is the official announcement of the Province of Quebec that pulp wood cut from Crown lands after May 1st, 1910, cannot be exported. The American supply of pulp wood is almost exhausted. Many of the American mills are dependent upon Canada for their supply of raw material so that the action of the Provincial authorities of Quebec brings to the print paper industry of the United States a menace which the Special Committee of the House of Representatives after a ten months' investigation of the subject attempted to avert by its unanimous recommendation for legislation. If final action in adjusting this print paper matter with Canada is deferred for ratification and approval by Congress until next winter, it is probable that the newspapers' loss due to that delay will reach millions of dollars. We ask that you promptly act upon the bill proposed by the Chairman of that Committee, Hon. James R. Mann, (H. R. Bill 12314), entitled 'A bill to encourage and promote commerce between the

United States and the Dominion of Canada,' and authorizing the free entry of wood pulp and printing paper from Canada provided all restrictions on the exportation of pulp wood and wood pulp are removed. The good faith of Congress was pledged to adopt the recommendations of that Special Committee."

The bill referred to in this communication was to the effect that for the purpose of encouraging and promoting commerce between the United States and the Dominion of Canada wood pulp and printing paper shall be admitted into the United States free of duty when imported from the Dominion of Canada, being the product thereof, on the condition precedent that neither the Dominion of Canada nor the province or sub-division of Government thereof, where the same is in whole or in part produced or manufactured, and from which it is imported into the United States, forbids or restricts in any way the exportation of (whether by law, order, regulation, contractual relation or otherwise), or imposes any export duty, export license fee, or other export charge of any kind, either directly or indirectly, (whether in the form of additional charge or license fee or otherwise) upon printing paper, mechanically ground wood pulp, or wood used in their manufacture of wood pulp.

WASTE OF PAPER

Some useful suggestions to the shipping departments of paper mills are contained in a recent circular issued by John Norris, Chairman of the Committee on Paper of the American Newspaper Publishers' Association. It gives data bearing on damage in transit, white waste produced in the press room, paper left on cores, printed waste and weights of

wrappers. Reports from the various publishers show great variation in the percentage of waste under each of those headings, due to conditions of the press and in the press room. These, of course, do not concern our readers so much as the data referring to the manner in which different mills prepare and wrap their shipments. Distance traveled by the paper and still more the degree of re-handling the rolls affect the comparisons.

The weights of wrappers, costing, we are told, approximately \$1,200,000 per annum, afford an interesting study from many aspects. One paper company, with comparatively light weight wrappers, has more damage in transit than other mills using heavier wrappers. It does not follow, however, that when the wrappers are heavy the damage in transit is always light. Many of the International Paper Company's mills average about 1.6 per cent. for wrappings of full width rolls. Any excess over that weight, thinks Mr. Norris, should be a matter for inquiry. Many mills use needlessly heavy wrappers in preparing paper for shipment. They add unduly to the cost of the paper without increasing their own profit. They sell wrapping paper to the publishers at prices above what they pay for it. In loading freight cars they fail to use diligence in protecting the paper against projecting nails and bolts and other conditions which produce damage in transit. They insist upon selling the paper delivered, but they decline to deliver all of it in good condition. The paper companies in their uniform contracts use this phraseology: "No allowance will be made for waste, damage or paper left on cores."

Canadian mills show up well in the matter of careful packing, the ones men-

tioned specifically being the Booth mill, Laurentide, Belgo, Canadian, and E. B. Eddy's. Another illustration is taken from Norway from which country a shipment of 40 tons arrived at its destination in Texas without one roll being damaged in transit. Care in loading cars is an item often disregarded, with the result that much paper is spoiled by getting caught on nails or projecting bolts, etc.



In view of the new legislation introduced in the Province of Quebec dealing with Crown timber lands, it will be of interest to know that the area of Crown lands under license last year was 67,428 square miles. So far as pulpwood is concerned the amount taken off such lands by the twenty-three firms holding licenses was 359,858 cords, of which 142,200 cords were exported from Canada. The ground rent derived last year from these lands was \$147,208, the greatest in the history of the Province. The Province is wisely holding its lands, there being no timber limit sales last year. The total income from Crown lands was \$906,360. The Province now has a forestry service, which will, no doubt, rapidly improve in efficiency. The report of the Minister of Lands and Forests for the past year gives some interesting information on the water powers of various districts recently explored, with reports on the national provincial parks and the forest protection service which is also improving. Altogether the Province is to be congratulated on the fact that it is beginning to appreciate the incalculable value of its forests and water powers.

SAFEGUARDING STEPS OVER PAPER MACHINERY

These steps have been the cause of many accidents, and many schemes have been proposed for diminishing the risk of slipping on them. Ribbing the steps is not of much account, as the ribs soon wear down, and the step becomes more slippery than ever. Cast-iron steps rough from the mould are better, but get smooth in time, and are apt to get broken. Wooden steps are also slippery, as they must be kept well planed, and free from splinters, which might wound the bare feet of the workpeople. Any kind of step is, of course, very likely to get wet and greasy, and hence more slippery than it would be otherwise. An excellent plan, which has been extensively applied and tested in Germany, will not be without interest to our readers. The steps are made of cast-iron, and short pieces of angle-iron are fixed on the top of them by screws. The heads of the screws must be on the under side of the steps, so as to obviate all chance of their becoming stuck and immovable. If they are on the upper side they are sure to get fixed with dirt, especially as they must then be countersunk. The projection of the screw heads under the step is, of course, of no particular consequence, and there, too, they are out of the way of the feet of the workpeople. When the angle-irons are screwed on, Portland cement mixed with fine sand is poured between them. The best proportion is 2 lb. of sand to 1 lb. of cement. Mixed with water, the concrete, as it may be called, is poured over the step till it is level with the tops of the angle-irons, which serve to hold it together. When the cement is worn, and the angle-irons are projecting, the screws are loosened, and the whole mass is then readily removed and replaced by fresh, after the angle-irons have been screwed in again. The concrete is bounded by a wooden border along the edges of the steps.

MONTREAL PULP AND PAPER NEWS.

(Special to Pulp and Paper Magazine.)

Montreal, May 7th, 1910.

The order-in-Council prohibiting the exportation of pulp wood, cut on Crown lands in the Province of Quebec, has been issued by the Lieut.-Governor, and was made applicable from the 1st of May. Consequently, the prohibition is now in force. The increase in the stumpage dues and the rents of timber lands, however, cannot go into effect before September 1st. The important clauses relating to the new policy are as follows:

(A)—All timber cut on Crown lands after the 1st of May, 1910, must be manufactured in Canada, that is to say, converted into pulp or paper, into deals or boards, or into any other article of commerce or merchandise, as distinguished from such timber in its raw or manufactured state. There shall not be considered as manufactured, within the meaning of the present regulations, timber merely cut into lengths or logs piled up, barked or otherwise worked preliminary to the fabrication of pulp or paper, of deals or boards or of any other articles of commerce, nor waney timber nor poles; but actual square timber and railway ties are considered as manufactured.

(B)—Any time that, on satisfactory information supported by an affidavit, the Minister or authorized officer shall have reason to believe that timber cut in virtue of a license on public lands is not to be manufactured in Canada, in whole or in part, this timber may be seized and placed under custody by any agent of the department. The Minister or his representative shall give notice of the seizure to the interested parties and request them to give two good and sufficient securities that the timber seized will be manufactured in Canada. If within a month after such notice and request, the required securities have not been given, the timber seized shall be sold at public auction after a notice of at least 15 days. The pur-

chaser at such sale must, himself, give good and sufficient security that the timber will be manufactured in Canada, and the proceeds of the sale shall be paid over to the person entitled to the same after deduction of cost of seizure and sale and any sum due the Crown by the licensee-holder or by any other person who has cut or caused to be cut such timber or who is the owner or holder of the same.

Onus of Proof on Owner

(C)—After the seizure the burden of proving that the timber is to be manufactured in Canada lies on the owner of such timber.

(D)—Where the timber to be seized is made up with other timber, the whole of the timber may be seized and dealt with accordingly until satisfactorily separated.

The first clause of the regulations relates to the increase in ground rent as follows:

1. All licenses to cut timber are subject to an annual ground rent of five dollars per square mile or fraction thereof to date from 1st September, 1910, these licenses to run for twelve months from the 1st May to the 30th April following, and no claim for overcharge of ground rent and fire tax in the extent of the limits can be entertained after licenses have issued.

2. All licenses expire on the 30th April after being issued, but the licensee who conforms to the existing regulations has, until the 1st September following, the right of renewal of the same. Any infraction of the law or regulations forfeits the said right, but the Minister may consent to the renewal of the licenses on payment of the ground rent and such penalties as he may see fit to impose.

Ground Rent Increased 1920

Clause 15 of the regulations gives a detailed schedule of the increased stumpage tariff to be charged on each special form of timber, Clause 16 explains that:

"The present rate of ground rent for licenses to cut timber shall not be increased until the first of September, 1920, and all license-holders who have conformed and shall conform to the laws and regulations concerning the administration and sale of timber on Crown Lands shall have, up to that date, the privilege of renewing the licenses at the same rate of ground rent.

"And the dues now exacted by the regulations on all timber cut in virtue of a license shall not be increased before the said date of 1st of September, 1920. But the rate of ground-rent may, at all times, be increased for the license-holders who do not operate their limits, the Crown reserving the right to determine the quantity of timber which must be cut to constitute a sufficient lumbering operation."

Incorporated in the Order-in-Council are former Crown Lands regulations side by side with the new ones, but in many cases the wording has been changed slightly and the clauses made clearer.

Brompton Pulp & Paper Company

The Brompton Pulp and Paper Company has purchased the entire Champoux interests along the St. Francis River and in the Quebec Central district. The property includes 18,000 acres of limits and a mill at D'Israeli. Messrs. B. C. Howard and R. A. Ewing of Sherbrooke, were appointed arbitrators to look over the property and fix the price the Brompton Company is to pay. A deposit has already been paid and it is expected that the purchase price will be in the vicinity of \$250,000. The purchasing company some time since secured the property of the Royal Paper Mills Company, at East Angus, and the limits owned by that company. By the present purchase it will obtain practically a clear road to the head waters of the St. Francis River. The Brompton Company will take possession immediately. Prior to this purchase it owned some 250,000 acres, one-half freehold and the balance stumpage. The Champoux Bros. still own extensive limits in other parts of the Province. Mr. F.

N. McCrea, of Sherbrooke, is president of the Brompton Company.

Word comes from St. John, N.B., to the effect that Messrs. A. Cushing & Company, a large firm, owning pulp and lumber mills and doing an extensive business, has assigned. The liabilities are said to be large, the Union Bank of Halifax being a large creditor.

New Brunswick Prohibition

New Brunswick is seriously taking up the consideration of the advisability of prohibiting the export of pulp wood cut on Crown Lands. A committee of the Executive Council, consisting of the Provincial Secretary the Chief Commissioner of Public Works and the Surveyor General will commence the work of gathering evidence at an early date. If possible, the result of the enquiry will be contained in a report to be presented to the Lieutenant-Governor-in-Council not later than next fall and the question of what action the Government will take in the matter will then be decided. No doubt the recent action of the Province of Quebec, in the same direction, has had some influence upon the Government of New Brunswick.

Riordon Paper Mills Montreal Office

The Riordon Paper Mills Company has removed its head office, in Montreal, from the Mark Fisher Building, on Victoria Square, to the building recently purchased by the company, at No. 1 Beaver Hall Square. Beaver Hall Hill and Square are rapidly becoming a business thoroughfare. The movement was started by a trust and guarantee company, about ten years ago. Next came a firm of architects, half a dozen years ago. Since that time, several other firms of architects and civil engineers, clubs and other business and professional or semi-professional concerns have been added. Recently was announced the news that the Ritz Hotel would be built in the neighborhood.

The building purchased by the Riordon Company was once the residence of the late John Torrance, of the Dominion Line of Steamships, and was constructed in the days when walls were built for safety.

Consequently, the Riordon Company may add several stories without danger. The company is reconstructing the interior of the building and fixing it up splendidly as its head offices.



Herbert Knox Smith, Commissioner of Corporations, at Washington, has compiled some interesting statistics which some interpret as indicating that if the supply of paper produced in the United States continues to decrease as it has done during the past six months, it will soon become necessary to draw to a greater and still greater extent upon Canada and other outside sources for supplies. The report says—

“Beginning with last September, the amount of paper on hand at the mills at the end of each month has been decreasing by a few thousand tons every thirty days. From 53,115 tons on hand at the end of August, 1909, it dropped to 19,907 tons at the end of March, 1910. From September, 1909, to, and including, March, 1910, the amount of paper shipped by the mills each month has exceeded the amount produced. The amount of the excess varies from 1,000 to 8,000 tons a month. The amount of print paper, valued at not more than two cents per pound, imported during the years 1904 and 1909, increased from 3,781,160 pounds in the fiscal year 1904, to 34,088,642 pounds last year. Practically all this paper was imported from Canada.”



Replying to criticisms respecting his action in announcing the policy of the Government, in connection with the prohibition of the export of pulp-wood, Premier Gouin said that he made the announcement in Montreal shortly after the last session, because he wanted to let the public know what stand would be taken, before submitting the matter to the House. By so doing, the views of interested parties would be heard before the matter was finally settled. Limit holders, in the Province, had been noti-

fied that the stumpage dues would be increased an average of 60 per cent., being an advance to \$5, from \$3, per square mile.

One of the Liberal supporters, Mr John Kelly, representing Bonaventure, attacked the policy of the Government. He declared that in spite of the good principle involved in the law, the Province would not be in as good a position for years to come as it was to-day, so far as the pulp-wood industry was concerned. Financial upheavals would result from a sudden change of policy in the Crown Lands Department. It would take ten or fifteen years before proper mills could be established in the Province to manufacture the pulp-wood that would be prohibited from export. Meantime, those operating on Crown Lands would find their market cut off, while the large private land owners, being untouched by the new law, would conduct a flourishing export business. Seven million acres of seigneurial land would thus be increased in value, and until they had been cleared of timber, the law would not be felt, save that Crown lands would decrease in value and small limit holders would be at the mercy of the large owners. Former Governments had tried to prohibit pulp-wood export, but had been obliged to give way before the immediate needs of the Province.

Mr. D. H. Pennington, M.L.A., Megantic, an owner of timber interests in the Province, thinks the Government will have difficulty in carrying out the new law, inasmuch as holders of Crown limits might have private lands adjoining, and the Government rangers would not know what range they were on unless told by the lumbermen. Consequently, the latter could include wood cut on Crown lands as if cut on private lands.

Hon. Mr. Kaine, Minister without portfolio, and a lumberman, expressed the view that the new law could not greatly affect Canadian industry for a number of years. The American mills have a large supply of timber and will be able

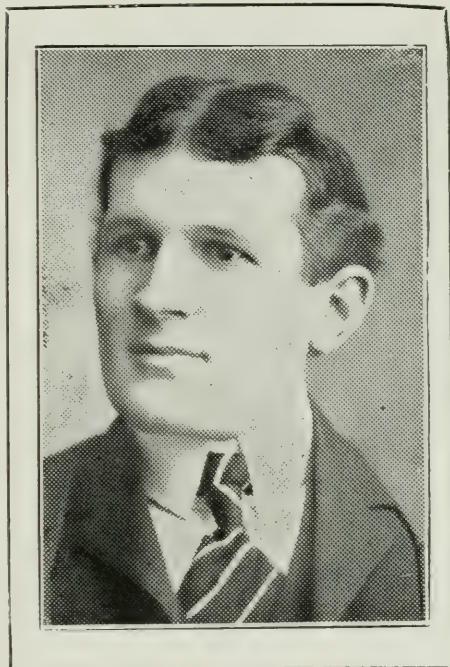
to operate without the wood from the Quebec Crown lands for at least five years. Some of the big firms, however, might begin construction work very soon, as it would take some time to establish a pulp or paper plant, and they would desire to be in readiness for the time when it was necessary for them to manufacture here. He did not think that the Government would experience difficulty in preventing the exportation. Small lumbermen might easily evade the law, but big firms like the International Company and the American Bag Company, which take hundreds of thousands of cords yearly from the Province, would be directly affected. Notwithstanding the claims that the imposition of the prohibition upon the export of the pulpwood would have little or no effect upon the manufacture of pulp in this Province for some time to come, word has been received from Quebec to the effect that arrangements are being made in order that the output of a number of pulp and paper mills may be increased without loss of time, it being the belief that the new law will shortly occasion a very considerable increase in the number and volume of orders for shipment to the United States.



DEATH OF MR. GAGNE

A lamentable accident took place near St. Alphonse, Que., on the Ha-Ha Bay Railway on the 14th April, by which several men lost their lives, among them being Stanislas Gagne, civil engineer, well known to readers of this magazine. It appears that while blasting on the railway there was a premature explosion which resulted in burying about twenty men. Mr. Gagne, who was acting as chief engineer had just arrived when the explosion occurred and was buried with the others. A rescue party recovered more than half of them alive. Mr. Gagne was a member of the firm of Gagne & Jennings, civil engineers. his partner Gordon

T. Jennings, son of the late W. C. Jennings, C.E., being on his wedding at the time of the fatality. The deceased who was born in Quebec in 1879, was a graduate of the School of Practical Science, Toronto, and was a very bright student. He had made a special study of the pulp and paper industry, and while a student won



STANISLAS GAGNE

the prize given to the Canadian Society of Civil Engineers by the proprietors of this journal for the best student's essay. This paper appeared in the Pulp & Paper Magazine in its first year. Mr. Gagne was for a time assistant engineer for the Toronto and Niagara Power Company, and later was appointed chief of the right-of-way. He afterwards formed a partnership with Mr. Jennings with offices in Toronto but the office was quite recently moved to Chicoutimi upon the firm securing the contract for the Ha-Ha Bay Railway.

PULP AND PAPER NEWS

The cut of pulp-wood in northern New Brunswick this season has been a heavy one.

* * *

Walter Boutotte had his arm broken while working in the wet press room of the Imperial Paper Mills, Sturgeon Falls.

* * *

The Lincoln Paper Mill at Merriton was closed down for a few days last month owing to water being out of the weir.

* * *

The Chicoutimi Pulp Co.'s new mill is now about completed, which means an enlargement of their capacity by 50 tons extra per day.

* * *

The Ouatichouan Falls, Que., Pulp Co.'s mill has been extended so that its present capacity is 60 tons dry weight pulp per day.

* * *

It is stated in an Ottawa despatch that J. R. Booth proposes to build a large, new mill for the manufacture of high-grade writing papers.

* * *

The Colonial Wood Products Company, Thorold, Ont., although they only entered on operations a short time ago, report the mill rushed on orders.

* * *

John R. Barber, the well-known Toronto and Georgetown paper man, has returned from Atlantic City—we are glad to say greatly improved in health.

* * *

R. O. Swezey, civil engineer, Quebec, has been appointed on the Canadian security of Civil Engineer's Committee to act with the Conservation Commission as representative of Northern Quebec.

* * *

The old rumor has been revived to the effect that A. Menier, the owner of a large portion of the Island of Anticosti, in the Gulf of the St. Lawrence, is about to build a large pulp mill there.

The Victoria Paper and Twine Co., Toronto, has been appointed selling agent for this country for the Wayne cedar paper wardrobe bags made by Wayne Paper Goods Co., Fort Wayne, Ind.

* * *

The old village of Sandy Hill, N.Y., prominent in the manufacture of paper for many years and as the location of the Sandy Hill Iron & Brass Works, has had its name changed to Hudson Falls, N.Y.

* * *

The Jenckes Machine Company of Sherbrooke, Quebec, have on order six heavy grinders for the pulp mill at Jonquieres and are building a 1,400 h.p. turbine to be installed in the same mill next month.

* * *

Among recent visitors to Canada from across the ocean were S. W. Whitlock, representing John Walker & Company, paper manufacturers, London; and W. H. Craft, of Alex. Cowan & Son, paper makers, Edinburgh, Scotland.

* * *

The National Timber & Pulp Company, Toronto, are perfecting plans for erecting a large pulp mill at the junction of the St. Lawrence and St. Anne Rivers in Quebec. The company, it is estimated, has some 700,000 cords of pulp wood, mostly spruce, on their property.

* * *

The North Shore Pulp Company's pulp mills at Clarke City, Que., are busy. The present output is about 200 tons per day, which is all shipped to England and the Continent, large quantities being purchased by the Edward Lloyd mills. The works at Clarke City are now approaching completion.

* * *

J. C. Wilson & Company are installing two new beating engines in their paper mills at Lachute. These are from the E. D. Jones Company of Pittsfield, and replace two old beaters of smaller capacity made by the same firm. This mill is running to its full capacity on its old specialties of manillas and paper bags.

The Chemical Laboratories, Limited, Toronto, are preparing their plant for the manufacture of chemicals used in the pulp and paper trade. These include soda sulphite, sulphuric acid, etc., while they are also prepared to supply bleaching powder. The products of this company have a high reputation for quality and their extension of this class of business will be watched with interest.

* * *

Amendments of the Railway Act recently passed by the Dominion House, were to the effect when damage is caused to property by fire started by a locomotive, railways shall be liable, whether the company has been guilty of negligence or not, provided that if it be shown that it has used modern and efficient appliances and not have been negligent otherwise, the total compensation recoverable shall not be more than \$5,000.

* * *

Customs duties assessed on mechanically ground wood pulp, made from pulpwood cut on private lands in the Provinces of Quebec and Ontario, by Customs officers along the Canadian border, are to be refunded, according to an announcement made by Mr. Curtiss, assistant Secretary of the United States Treasury. A large number of entries made at Plattsburg, Niagara Falls, Buffalo and Ogdensburg are affected by the ruling of the Department.

* * *

The Montrose Paper Co. is making arrangements for the beautifying of its St. Catharines premises. The mill, which is on the east side of the old canal, is situated on a slope and could be made to present a very attractive appearance if some improvements were added in the shape of sodding, etc. The building is situate in a prominent position, coming under the eye of travellers on the N., St. C. & T. R., so that any additional attractions it may possess will not be wasted.

* * *

The Elliott Manufacturing Company, of 233 Richmond Street, Toronto, are negotiating with the city council for a

21-year lease of land on Ashbridge's Bay, in the eastern part of the city, for a paper mill. This will be a mill for news board, and will have a capacity of 15 tons a day. In connection with this mill the company will continue their present business of manufacturing corrugated paper articles, such as casings, etc. Construction work has been started on the new mill.

* * *

The Sherbrooke Machinery Co., Ltd., Sherbrooke, Que., manufacturers of wet machines, pulp separators, cylinder moulds, revolving suction, pneumatic save-alls and other pulp and paper machinery, are sending out the first edition of their new part catalogue. These part catalogues will be issued at short intervals and it is intended to cover the company's full line of machinery. Part 1 describes and illustrates the Pneumatic Save-all and gives examples of that economy-worker in service. The catalogues are well printed and beautifully gotten up and they will be sent to any mill applying for them.

* * *

The Smart-Turner Machine Company, Limited, Hamilton, have recently supplied pumps to the following firms:—The Millers Tanning & Extract Company, Millerton, N.B.; Edwin Crabtree & Sons, Crabtree Mills, P.Q.; Contracts, Limited, of Bracebridge; The Algoma Lumber & Chemical Co., Parry Sound; The Intercolonial Railway, Moncton, N.B.; Kent School, Toronto; The Blau-gas Co., Montreal; The Great Lakes Dredging Co., Port Arthur; The Keenan Woodenware Manufacturing Co., Owen Sound; The Slingsby Manufacturing Co. of Brantford, Ont., and the Waines and Root Gas Co. of Dunnville, Ont.

* * *

The Foley-Rieger Pulp and Paper Company, a new company composed largely of United States capital, has bought the old Keefer mill on the banks of the old Welland Canal at Thorold, Ont., and is putting it in shape for a ground-wood pulp mill. They hope to have it in

operation by July 1st. There are two buildings, one of five storeys, 45 by 90 feet, and the other of two storeys, 35 by 90 feet. Those in control of the new company are Edward P. Foley, of Thorold, formerly with the Davey plant; Herman Rieger and H. A. Constantine, of Niagara Falls, N.Y. About \$100,000 will be expended on buildings and machinery.

* * *

The new tent and awning works of Tobin, Limited, Ottawa, have now been opened up and are running to full capacity. The factory which is situated at the corner of Bank Street and Strathcona is three stories high with basement, and has 7,500 ft. of floor space. It is operated by electric power. The company has its own forge and shop for making iron and wood fittings for tents and tent furnishings and in the tent making room are installed some new double needle sewing machines. All kinds of waterproof camping and prospectors outfits are made here, besides roller blinds, pull blinds, etc., the latter being made up to 60 ft. in length and the former over 20 ft.

* * *

A correspondent from the Eastern Townships of Quebec notes that a larger amount than usual of pulp-wood is lying at stations. Much of this is awaiting purchasers. It appears that anticipating the prohibition policy a number of farmers got out wood and brought it to the stations on speculation, expecting a rush for supplies from the United States. The rush did not come and more than that the big strike in the International Paper Company's mills has lessened the regular demand so that a good deal of wood may remain unsold for the season. Along the line of the Quebec Central Railway, there are about 200,000 cords, three-fourths of which is unsold. The amount of wood cut and awaiting shipment in various parts of the Province is now about 500,000 cords. The price of peeled or rossed wood ranges from \$6 to \$7 a cord at stations on the south shore of the St. Lawrence.

It is reported from Kenora, Ont., that E. B. Reese has obtained a short date option on the power works of the Keewatin Power Company, which has remained unutilized for several years. Mr Reese is trying to make contracts for the transmission of 10,000 h.p. or more to Manitoba towns; and the surplus would be devoted to running local industries chief of which is mentioned a pulp and paper mill of a capacity of 40 tons a day. A mill of larger capacity could be built provided the spruce forests to the north were tapped by a railway. The Keewatin Power Company was a project started by the late John Mathers of Ottawa and was erected in 1892 at a cost of \$125,000. It was the original intention to build a pulp mill but at that time the western country was not developed as a market and the situation was not favorable for an export trade.

* * *

H. L. Orrman, of Dayton, Ohio, inventor and manufacturer of the "Ruth" centrifugal pulp screen, extensively used in the United States and Canada, has been on a visit to Ontario and has made a change in his plans of doing business in Canada. Mr. Orrman, who hitherto had these screens made by the Manson Manufacturing Company of Thorold, has arranged with the Wm. Hamilton Manufacturing Company of Peterboro', Ont., to make the Ruth screen for the Canadian market for the future, and P. P. Westbye has been appointed representative in this country. Like Mr. Orrman Mr. Westbye is an experienced pulp manufacturer and understands the conditions of the industry in Scandinavia and continental Europe as well as in America. Mr. Westbye is a qualified mechanical engineer as well as a man of experience in pulp manufacturing, and with the good work which the Wm. Hamilton Manufacturing Company is capable of turning out, and with the further advantage of some new improvements to the machine the Ruth screen should meet with a greater demand than ever. Mr. Orrman is, this month, visiting some of the mills of Ontario and Quebec.

CANADIAN PAPER BUSINESS IN MEXICO.

Until comparatively recent years the importation of paper of all grades and kinds into Mexico was quite general. The importer was practically on an equal footing with the dealer in or consumer of the domestic article. What local factories there were turned out a very inferior article, and the quantity manufactured was far from meeting the consumption. There were quite a number of local paper factories, each in competition with the other, but none competing for the business of consumers of good taste, who required at least a fairly good article. In the days referred to, not only were all the better grades imported, but large quantities of news print, wrappings, book papers, cheap bonds, blottings, toilets and tissues.

During the last 10 or 12 years great strides have been made by the local factories as regards quality and quantity turned out. Capital invested has been greatly increased, and the most modern machinery and methods introduced. A few years ago all the then existing factories, with one single exception, formed a merger under one capitalization and management while continuing in operation a number of the plants of the concerns interested. Since that time one other factory has been established, making a total of three distinct companies at present manufacturing. These, with their respective capital amounts being expressed in Mexican pesos, are as follows:

"San Rafael" Company ..	\$7,500,000 00
"Pena Pobre" Company ..	250,000 00
"Loreto" Company	250,000 00

All of these factories are doing a prosperous business, the stock of the San Rafael Company being at a considerable premium and always in good demand.

Owing to the present capacity of these three mills, and the high tariff on papers of even the cheapest grades, there are certain classes of papers whose importa-

tion is not now possible. These classes are: News print, wrapping, R. R. Manila, cheap blottings, cheap thin cardboard, cheap tissues, toilets, cheap coated paper, bonds equivalent to 5 or 6 cents per pound, super-calendered book paper and paper for the manufacture of cheap envelopes. The exchange, freight and duty are such that news print, for instance, worth 3 cents gold per pound costs, when placed in Mexico City, 12½ cents per pound in Mexican currency, or more than quadruple its original cost in gold. With pulp free under the tariff and the freight rate thereon lower than on the manufactured article, it is not difficult to understand why the importation of these cheaper grades is prohibited.

All papers not included in the foregoing list are still imported. To be more explicit, these include: High graded coated papers, high grade ledgers and bonds, fine tissues, paper for fine envelopes, cigarette paper, Bristols and fine cardboards, colored and white covers, natural colored tag-board and mottled papers for book-binding. Also might be mentioned wall paper, none of which is manufactured here, though this is a subject rather by itself than to be treated of in this report.

The reason why the higher grades of paper can be imported, while it is impossible to import the lower grades of the same class, is due to the fact that the duty is entirely specific, with the same rate per kilogram on the cheap as on the high priced article. The duty generally applicable to all papers that the Canadian market could offer to Mexico would be 20 cents, Mexican, per kilogram, equivalent to about 4½ cents, gold, per pound. It will readily be seen that in the case of 5 or 6 cent paper the duty would be the equivalent of 100 per cent. ad valorem, while in the case of the 18 or 20 cent article it would be less than 25 per cent. This gives the local manufacturer so much a better profit on the cheaper grades that he is satisfied to monopolize the business in them, and leave to the foreign manufacturer

the more arduous task of turning out the high grade article.

In regard to sizes, there is little to be said. The United States, English, German, French and Spanish sizes are all admissible. The only important point to note carefully in this respect is that all papers must come in flat and of such a size that no one side measures less than 45 centimeters (about 18 inches) in order to obtain the advantage of the minimum tariff. This makes it necessary to send double the ordinary 17 by 22 size or 22 by 34, there being a difference of 13 cents per kilogram in duty in favor of the larger sizes.

Very few envelopes of any kind are imported. The better grades are made in the country from imported paper, the duty on this being 20 cents per kilogram, while the duty on the manufactured article is 45 cents. The total value of envelopes imported in the fiscal year 1907-08 amounted to only \$82,000.

The following synopsis from the statistics of imports for the fiscal year 1907-08 includes all those classes of paper which the Canadian mills would be in a position to supply to this market. The duty quoted is in Mexican cents per kilogram, the quantity in metric tons of 2,204.6 pounds and the values in Canadian currency.

Waste paper and pulp in sheets, of natural color, for manufacturing:—

Waste paper and pulp in sheets, of natural color, for manufacturing, 13,493 tons, free	\$491,063
Germany	\$58,600
Canada	12,140
United States...	53,600
Norway	83,700
Russia	58,000
Sweden	190,750
Switzerland	33,600

White paper, containing more than 40 per cent. of mechanical pulp and whose square meter weighs more than 50 but not more than 150 grams.

432 tons, duty 7½ cents	\$31,207
Germany	\$2,300
Canada	6,360
United States ..	19,450
Great Britain ..	1,096

White paper, containing up to 40 per cent. of mechanical pulp and whose square meter weighs more than 50 but not more than 150 grams.

642 tons, duty 20 cents	\$120,700
Germany	\$30,900
United States ..	79,000

Papers of colored pulp and those not specified, the square meter weighing more than 50 but not more than 150 grams.

154 tons, duty 20 cents	\$28,700
Germany	\$ 3,500
United States ..	20,150
France	3,100

Papers of the natural color of the pulp, the square meter weighing more than 50 but not more than 150 grams.

854 tons, duty 9 cents	\$40,600
Germany	\$12,600
Austria	6,450
United States ..	21,600
France	1,700
Norway	4,000
Sweden	2,850

Papers and cardboards of the natural color of the pulp, the square meter weighing more than 150 grams.

361 tons, duty 6 cents	\$31,500
Germany	\$ 1,300
United States ..	27,400
Russia	1,300

White papers and cardboards, the square meter weighing more than 150 grams.

105 tons, duty 15 cents	\$20,400
Germany	\$ 9,200
United States ..	8,500

Papers and cardboards of colored pulp, the square meter weighing more than 150 grams.

114 tons, duty 12 cents	\$15,080
Germany	\$ 3,850
United States ..	10,900

A number of the large paper houses of the United States and Europe have

permanent representation, through an agent or special representative, in this country, while others send a traveller periodically to solicit business. If the Canadian manufacturers consider the business worth going after they should adopt a similar policy, either a special representative, or a local agent with a periodical traveller, being the best way to secure the business.

With the direct steamship service from Canada to Veracruz and Tampico, freight rates should be as favorable as those from any other country. These, including expenses of insurance and consular invoice, amount approximately to two cents, gold, per pound, on the best grades. The agents for Elder Dempster & Company, in Montreal, Halifax and St. John, be asked for exact quotations.

—From a report by A. W. Donly, Canadian Trade Agent in Mexico.



BAD SIZING FROM WET-BEATEN STUFF.



Certain correspondents of the Papier-fabrikant have noticed that in making paper from specially wet-beaten stuff the sizing is very frequently faulty, whereas the general opinion is that wet-beaten pulp is more easily sized hard than free stuff. One of the writers suggests that the difficulty arises owing to the obstinate retention of water by wet-beaten stuff in consequence of which the paper is liable to be not thoroughly dried on the machine. In glazing, also, the paper may receive too much moisture in dampening and the pressure of the calenders acting on the contained water causes it to force apart the particles of rosin from the fibres. He has generally noticed that the bad sizing first makes its appearance after glazing. Attention to the drying of the paper and restrictions of the quantity of water put on in the dampening operation, as well as its uniform distribution, will generally cure the trouble. But bad sizing results with wet-beaten

pulps may sometimes be traced to the beaters. This is the case if the size be added to the beater too late in the beating process, after the fibres have assumed a more or less gelatinous consistency. The rosin will then fail to penetrate this jelly completely, and will not be intimately combined with all the fibres. The best way of sizing such pulp is to add the size shortly after furnishing the beater and thus enable it to become thoroughly beaten up with the pulp; the sulphate of alumina should be added at the end of the beating. The writer cites a case of a somewhat heavy paper composed of unbleached sulphite pulp which, as soon as more than 4 per cent. of water were added in the dampening, showed bad sizing, but which could be perfectly well glazed with less water. It is true that papers which are made from wet-beaten stuff possess a certain resistance to water and are sometimes practically sized without rosin, but this resistance is due to their density, and is of quite a different nature from that imparted by rosin sizing.

Orders are frequently given for tissue papers glazed on both sides, and these fetch a higher price than those glazed only on one side. It is desirable, therefore, to possess a means for fulfilling either order at will by means of the tissue paper machine with automatic take-off, which produces tissue more cheaply than the ordinary Fourdrinier.

According to a contributor to the Papier-fabrikant, a satisfactory machine for fulfilling this double purpose has not yet been devised. The writer discusses the means by which two-sided paper can be made with an automatic take-off machine. In the first place, an attempt may be made to glaze the rough side of the paper by a second glazing cylinder or calender, but once the M.G. finish has been applied to one side, it is impossible to bring up the other side equal to it. Attempts have also been made to destroy the one-sided glazing by dampening and then calendering, but this is impossible with unsized tissues and very uneconomical with sized papers. A proce-

ture which is less unsatisfactory is to bring the paper only three-quarters dried off the large cylinder through a calender with top and bottom chilled steel bowls and middle paper bowl, followed by four ordinary small drying cylinders. A two-sided finish may be obtained by having two tiers of several drying cylinders, and using only the lower tier when a one-sided effect is taken directly from the couch roll by means of a top felt and pressed against the moderately heated first drying cylinder.

Another method is the Lacroix principle in which the press roll transferring the paper from the take-off felt to the drying cylinder is lightened, and the drying cylinder is only gently heated. The paper is then further dried on three or four smaller cylinders, and the two sides have practically the same smoothness. Lastly, the paper may be supercalendered in a subsequent separate operation, but the high glaze so produced is not always so acceptable to the customer as a matt machine finish.



NOISELESS PROGRAM PAPER.

An increased field seems available for the "noiseless program," which has attracted notice in German paper circles. Of course a certain special character would thereby attach to theatrical and concert printing, while the ever-present factor of increased cost would have to be considered. Still (as the *Papier-Zeitung* remarks) when programs are charged for at the rate of 10 pfennige (2½ cents) each, there is sufficient margin for a little extra expense in the direction indicated. Judicious press agitation is, however, suggested as not immediately connecting the proposed change with a higher cost of printing.

From a manufacturing point of view there is no special difficulty in the production of noiseless paper. An expert paper chemist has pointed out that the raw material (a soft pulp) may either be soda or sulphate cellulose, Ritter-Kellner

pulp, straw pulp or esparto. The exceptionally soft character is imparted by the addition of 30 per cent. filling substance in the form of kaolin. It is likewise suggested to use brown size, containing alkali in sufficient quantity to neutralize the resinous acids.

One point worth noting is that the pulp is said to work better if the paper is made a little heavier at the start. In the manufacture of thin, noiseless program paper the difficulty is often met with that the web, on account of its inferior strength, is apt to tear. Irregularities in the suction of the machine should be avoided.

Another advantage of noiseless paper is that it takes print remarkably well, allowing the successful production of artistic effects. The latter remark specially applies to pergamin papers.



SELENIUM IN SULPHITE LYES.

A writer in the *Papier Fabrikant* mentions that when he had had his pyrites ovens at work for a few years he noticed that the pulp was brownish, brittle, and insufficiently boiled. Knowing that the presence of selenium in the sulphur had caused enormous difficulties in making sulphite lyes both in Sweden and Colorado, he was forced to the conclusion that the amount of selenium in the pyrites he was treating was becoming greater and greater. Chemical tests showed that the catalytic action of the selenium present reduced the yield of sulphur dioxide to one-ninth of what it ought to have been, all the loss being due to the formation of sulphuric acid, which of course tendered and colored the pulp, and acted energetically on the apparatus, causing enormous wear and tear. Tellurium in the pyrites has almost as bad an effect as selenium, and one of exactly similar nature. There is no remedy but to insist on chemical analysis of all pyrites, and to buy only a sulphide of iron guaranteed free both from selenium and tellurium. There is plenty of such harm-

less pyrites in the market, but at the same time there is plenty that contains selenium and tellurium, or both, and an incautious pulp manufacturer, unaware perhaps of the existence of these elements, and certainly of the disastrous results attending the presence only of very minute quantities of them, may easily find himself saddled with a contract to take large quantities of pyrites absolutely useless to him. The quantity of selenium or tellurium required to do harm is so small that only a responsible guarantee that they are quite absent should satisfy the sulphite pulp maker.



PREPARING COTTON HALF-STUFF FOR BLOTTING PAPERS.

A writer in the *Papier Zeitung* describes the correct method of preparing a cotton half-stuff possessing the properties most suitable for the manufacture of absorbent papers. These properties are specified as "free, long-fibred and free from knots." In order to obtain these qualities in the highest degree a suitable raw material should be selected. The rags should be of single texture, without strong and hard places such as hems, etc. They should be of uniformly soft texture in order that all portions of the charge may be broken down into half-stuff at the same time. The breaking engine must have a uniform circulation, assisted when necessary by the use of the stirring paddle. If the stuff is to be long in the fibre and "free," i.e., spongy, the natural form of the fibre must not be destroyed by crushing; it must retain its springiness and the central canal must not be compressed. The breaking process should, therefore, consist only of a drawing out of the spun fibres without shortening them in such a manner that they are stretched and crushed. Blunt tackle is not suitable for this purpose, since the broad surfaces of the knives, gliding over each other, stretch and press the fibres so that they lose their resiliency and the central canal is flattened;

further, the cut ends are teased out into fine fibrillæ, making the stuff "greasy." On the other hand, knives sharpened to a fine edge do not glide, but the fixed knife holds the fibres firmly, whilst the knives of the roll pull them apart with a sharp stroke, which affects only a small portion of each fibre every time. The engines should be furnished only thinly, so that the breaking process takes place as energetically as possible, the knives acting on only a comparatively few fibres at a time. The formation of knots is caused by the fibres floating about in the water and twisting themselves round one another. Since the stuff is not allowed to remain in the breaker longer than is absolutely necessary to reduce it to the required condition, the formation of tangles is most frequently observed in the bleaching engine, in which the knives are not of such a nature as to draw the fibres out again. The best sort of bleaching engine to use in order to avoid this is one fitted with screw propellers instead of paddles. The shorter the time in the bleaching engine the fewer the knots. It is best merely to use the bleaching engine for mixing and to complete the bleaching process in chests. The writer states that an English manufacturer of the finest blottings first carefully sorts the rags and removes the hems; then he breaks them to a long fibred half-stuff with tackle as sharp as a knife-edge and does not allow the stuff to circulate in the breaker and bleaching engine for a minute longer than is necessary. The half-stuff is finally beaten to a perfectly uniform pulp free from knots in a beater, the knives of which are regularly sharpened with the chisel. B.



A plan is said to be under consideration by a United States syndicate for the purchase of the McLaren mills in Buckingham, Que., together with timber limits. If the deal goes through the mills would be considerably extended. The McLarens, it is stated, would still retain considerable interests.

HAND-MADE PAPERS.

At the request of the German Paper-makers' Association, the Royal Prussian Testing Institute has undertaken experiments in order to ascertain whether the differences in the internal properties, which are known to exist between real hand-made papers and imitations made on the machine, are sufficiently pronounced to afford a means for distinguishing between these two classes of paper.

The report, signed by Professors Martens and Dal  ns, concludes, as indeed has long been known, that these differences, although they exist on the average, are by no means so marked as to lead to even an approximate method for classifying these papers.

The properties tested by the German experts: strength, stretch, resistance to folding, elongation on dampening and absorption of moisture when placed between damp blotting paper, all depend, with the exception of the last, on the relative disposal of the fibres in the two directions of the sheet. And, whilst these fibres are generally more uniformly disposed in real hand-made papers than in machine-made imitations, this rule is by no means a hard and fast one, and in a very large number of cases the relations as regards uniformity in the two kinds of paper do not hold.

Among the thirteen samples of imitation hand-made papers tested were papers made by Van Gelder, of Amsterdam, Saunders, of England, and only three samples of German make, the last being made on the Sembritzki machine.

The real hand-made papers were all of German origin, half of them coming from Zanders' mill.

The German experts investigated a method proposed by R. W. Sindall, depending on the amount of curl taken by a paper when one side is damped (this in its turn depending also on the disposal of the fibres), but they conclude that, like the other tests, this affords no reliable means for ascertaining the mode of manufacture.

The German professors also allude to differences which have frequently been stated to exist between the two kinds of paper as regards their structure at or near the edges of the sheets, but they are not satisfied that such differences are fundamental and general, and they do not consider themselves sufficiently expert on the practical side to express a definite opinion.

The question of deciding between the real and imitation hand-made papers, therefore, still rests with the practical trade experts, who are accustomed to deal with this class of paper, and who form their personal opinions from an examination of the external character of the sheets.

The reporters, however, point out that even if a certain means were obtained for distinguishing between the two kinds of paper, it would not be long, after it was known, before the makers of the imitation papers would find a way to reproduce the particular point of difference by their machines.



PULP THICKENERS.

Lord Northcliffe's great mills (The Anglo-Newfoundland Development Company) have recently purchased a new battery of eight pulp-thickeners possessing many points of superiority over earlier forms. These machines were made by the Sherbrooke Machinery Company, Limited, of Sherbrooke, Que., according to their own standard designs.

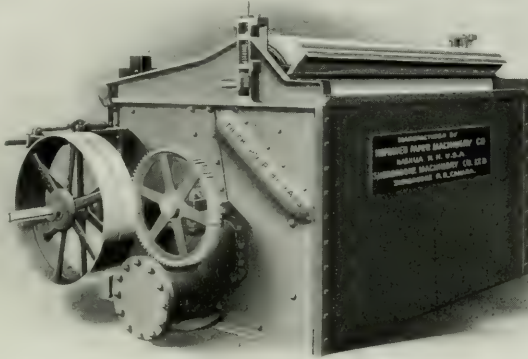
A similar battery, also supplied from the same designs, to another customer has been in use long enough to give conclusive data as to its performance; and it is the signed testimony of the user that these machines are delivering one-third more pulp than the old style machines formerly in service.

These pulp-thickeners are an indication of the progress that is now being made in pulp and paper machinery through the improvement of details. The basic principles do not change very much, but every real improvement of detail tends either towards economies in

operating costs or a better quality of output.

The feltless wet machine or "slusher" has been used with very little modification of general form for twenty years. As it is a widely used form of machine the total value of any one slight improve-

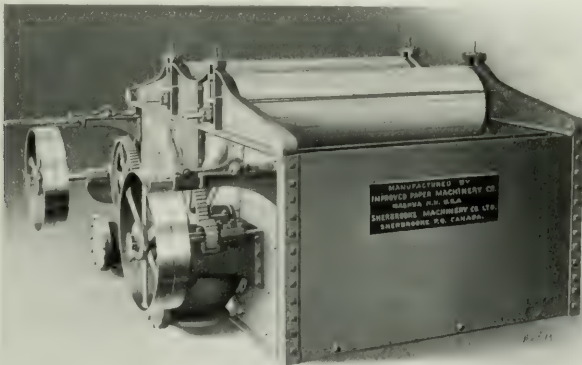
correct designing to ensure perfectly uniform action; and improved cylinder mold which remains permanently in true form without sagging; and special provision for by-passing all thickened stock (as fast as it accumulates back of the couch roll) into the receiving tank. The tank



ment made in it may become very large. It has its limitations as to the amount it can deliver, the life of the cylinder mold covering, and the percentage of fibre it can extract from the inflowing water. Here is an instance in which sufficient improvement has been made to

is of iron construction and carries the bearings of the cylinder mold upon the exterior of its end walls, so that accuracy of alignment is permanently secured. The couch roll is adjusted by springs.

These thickeners are made of several different sizes and are adapted to be con-



increase its output one-third, without increasing the wear and tear on the screen and with a smaller loss of fibre through the screen.

The improvements in these machines, as made by the Sherbrooke Machinery Company, consist mainly in careful and

nected together in any combination or "battery" arrangement desired. They show marked economies in power, space occupied and in cost per ton of thickened pulp. As already stated, they are doing one-third more work than the older machines which were formerly used.

The Belgo Canadian Pulp & Paper Co. Limited, Shawinigan Falls, Que., write thus to the Sherbrooke Machinery Co., Sherbrooke, Que:

In regard to Pneumatic Save-All you have furnished for our Mill, we take pleasure in informing you that same are working in a thoroughly satisfactory manner. These machines have now been in operation for almost one year and we are pleased to say that the maintenance cost of these machines has been lower than you stated when you sold us the first machines; so far as the saving of stock is concerned, must say that these machines are fully up to your statement.



BRITISH MARKETS

The World's Paper Trade Review quotes pulp markets as follows:

Chemical Wood Pulps

Although the demand on this side is rather slow, there is a distinctly firmer feeling, and makers are confident that higher prices will rule.

Mechanical Wood Pulps

Consumers are well supplied ahead for a long time to come, and the over-production is responsible for the low prices ruling.

Chemicals

Business steady; prices remain unchanged. Bleaching Powder (soft wood) is quoted £4 2s. 6d.; Ammonia Alkali, 58 per cent., £4 5s.; Caustic Soda, 76-77 per cent., £11; Soda Crystals, £2 17s. 6d.; Salt Cake, £2 2s. 6d.; and Recovered Sulphur, £5.

Wood Pulp Market of Norway

There has been a little livelier inquiry for chemical lately, though prices are so far practically unchanged. The delivery on contracts has been quite considerable. Three large mills have balanced their books for 1908; the result is not encouraging. In mechanical, the first half of March shows a good many sales for 1911 and 1912. But prices continue unsatisfactory, considering the cost of production, and the question of a reduced production has been under discussion in the organization for some time. There

appears to be a strong disposition towards an agreement of this kind.



RAG AND PAPER STOCK MARKETS

Montreal, May 6th, 1910.

This is the busy time of dealers in rag and paper stock. Reports are to the effect that there is practically no change in prices, as compared with a month ago. At the same time, there seems to be a falling off in demand in the United States, conditions over there being very difficult to understand at the present time. Industrial conditions do not appear to be essentially bad, but a feeling of hesitation if not distrust is quite evident and this is having its effect upon the export of rag and paper stock from Canada.

In Canada, conditions continue to be quite satisfactory. Business is fully up to that of a year ago and prices are generally higher. Apparently the mills are all receiving good orders and are operating actively. Prices continue about the same as last month:

Prices are as follows:—

Shirt Cuttings—	Per 100 lbs.
White	\$4 50 to \$5 50
Unbleached Cottons ..	4 25 to 4 75
Light Print Cuttings..	3 00 to 3 50
Shoe Rag Cuttings—	
Bleached	4 00 to 4 50
Mixed white	3 00 to 3 50
Light print	2 75 to 3 00
Overall Cuttings—	
Blue	3 25 to 3 50
Brown	2 00 to 2 50
Paper Shavings—	
Hard white	2 00 to 2 25
Soft No. 1 white	1 50 to 1 75
Soft No. 2 white	1 25 to 1 30
Mixed shavings	0 55 to 0 60
Ledger stock	1 00 to 1 25
Printed book	0 90 to 1 00
Common waste	0 35 to 0 45
Roofing Stock—	
No. 1 satinettes	0 75 to 0 80
No. 2 satinettes	0 45 to 0 50
Sundries—	
Old bagging	0 60 to 0 65
Manilla rope	2 00 to 2 25

(Continued on page 50).

The Pulp ^{AND} Paper Magazine of Canada

Vol. 8. - No. 6. TORONTO, JUNE, 1910

Canada \$1 a Year
Single Copy 10c.

Pulp and Paper Magazine

A monthly magazine devoted to the interests of Canadian pulp and paper manufacturers and the paper trade.

Subscriptions: Canada and British Empire, \$1.00 per year. United States and Foreign, on account of postage \$1.50 per year.

The Pulp and Paper Magazine is published on the second Tuesday of each month. Changes of advertisements should be in the publishers' hands not later than the 1st of the month, and, where proofs are required four days earlier. Cuts should be sent by mail, not by express.

BIGGAR-WILSON, Ltd.

PUBLISHERS.
Offices, Confederation Life Building,
Toronto, Canada.

RECIPROCITY WITH U. S.

It will be remembered that a few weeks ago, when the friendly agreement was reached between President Taft and Finance Minister Fielding, as to the United States duties on Canadian goods, it was understood that before long the whole question of reciprocity would be taken up between the two countries. This statement was of more especial interest to pulp and paper men, and it is these interests in the United States who are particularly desirous to know how they will stand in any future arrangement. Principally to them, also, have been due the repeated fulminations against the Republican administration for its alleged dismal record in tariff matters. The speedy removal of the countervailing duty of 25 cents per ton on print paper made from wood cut on

Crown lands in Quebec Province, which, of course, however, is in accordance with the letter of the law, is an indication of how keen the United States is to escape from the exactions created by its own latest tariff legislation. All sorts of rumors are rife across the border to the effect that Sir Wilfrid Laurier is endeavoring to bring influence on the Quebec Government to induce it to remove its embargo, though the Washington Government is probably cognizant enough by this time of the vanity of such hopes.

The promise of a reciprocity treaty made by President Taft on the occasion above would appear, judging from reports emanating from across the border, to be a little further distant than it was at that time. This is in accordance with the expectations of a good many, who know how difficult it is in the United States, even for those in high authority, and even when supported by a majority of the people, to push through a measure which may be antagonistic to the interests of a few strong concerns. There is no reason for doubting the bona fides of President Taft and his advisers; the only thing is not to forget that his Government has to reckon with interests strongly entrenched, and that if they choose to hold to the ground on the opposite side of the fence they will be difficult to dislodge.

The agreement to enter upon negotiations for reciprocity was really a part

the agreement reached a few weeks ago between Secretary Knox and Hon. Mr. Fielding; and the understanding was that these negotiations would be started at an early day.

Now comes word from Washington that there is a postponement, or perhaps abandonment of the project. Some of the United States papers blame their own administration, and give it as another instance of its history of blunders in tariff matters. Others attempt to place the onus on Canada, though most Canadians would be at a loss now to justly blame themselves.

In the meantime, so far as we can see, there is no particular hurry for reciprocity with the United States. We have managed so long without it that it will doubtless be possible for us to get along a few years more. That country, however, probably understands, without our telling them, that it will be increasingly difficult for them to obtain concessions from Canada the longer they are delayed. Even now, there is a very strong feeling amongst a large section of the Canadian people that the only proper basis for reciprocity would be after the United States had scaled down its duties to a level with our own—or when Canada has levelled hers up to an equality with those obtaining against us.

On general principles it seems a pity that we and our neighbors cannot or do not get closer together in trade relationships. Great benefit would doubtless accrue to both countries, provided the agreement were made on a fair basis. There is one thing which Canadians should ever keep firmly in our minds. That is, not to consent to a system of so-called reciprocity which calls for easy

access of our raw materials to the United States in return for reduced duties on their manufactured goods.



GOLDWIN SMITH.

In the lamented death of Goldwin Smith Canada loses a unique citizen, a man who might indeed be called the only one *sui generis* on this continent. Most of the conspicuous men it has so far produced have devoted their attention to business or to the development of natural resources. Even those possessed of brilliant intellectual capacity have, as a rule, used it for the furtherance of some special end, such as the formation of a party or the aggrandisement of an institution. Goldwin Smith was a searcher for absolute truth, help or hurt whom it might, himself by no means excepted. Necessarily a man whose talents and energies are concentrated on such a purpose must occupy a lone position. He can never be a leader of a party or a group of like thinkers, because a party, though many of its tenets be true, will seldom have the discernment nor the courage to eschew some tenet which may add greatly to its influence, but which cannot bear the cold, naked light of verity. This the powerful intellect of Goldwin Smith could and did do. Thus, even in causes which he espoused heart and soul, he was often in a minority of one in important details. It is not often that a thinker is so absolutely honest and clear-eyed in the workings of his own mind. The path of sophistry is so much more simple and self-satisfying.

To journalists all over the world, his example should be an inspiration.

Equipped with a storehouse of perfectly assimilated knowledge of marvellous breadth and depth, he always wrote with a pen dipped in the well of English undefiled, and his style, for purity, terseness and lucidity was on a par with that of the great classics. And this beautiful diction was used, not for the writing of one or two immortal books, to be enjoyed by posterity, but for the service of his living fellowmen. And he never truckled with what he understood, after hard study, to be the truth. His journalism was of the kind that, whatever might be the disadvantages to himself, of a clear portrayal of the right path to pursue, he steadily adhered to that. Obloquy and recriminations might follow in his wake, but it made no difference either to his determined course or to his temper. For Goldwin Smith was a philosopher both in intellect and morally. We have lost a great man.

THE NORTHERN PULPWOOD COUNTRY.

Those members of the Canadian Press Association who were fortunate enough to participate in the recent trip through Northern Ontario, as far west as 35 miles west of Cochrane—a trip which was made peculiarly enjoyable through the kindness and courtesy of officers of the Grand Trunk and Temiskaming and Northern Ontario Railroads—were struck by several points of interest in the country traversed. Not least among these was the marvellous wealth in timber, and more particularly, pulpwood resources, possessed by many districts throughout that vast territory, which is

almost an empire in itself. This is apparent as the train passes through thousands of acres of woods, of which, perhaps, 80 per cent. or more is spruce, interspersed with pine, balsam and poplar; and in a still more practical manner from the thousands of cords of pulpwood which are to be seen lying along the rails awaiting shipment. The Metagami River, west of Cochrane, the junction point of the T. & N. O. Railroad, with the new Transcontinental, possesses several rapids, and it is probable that at least some of these could be utilized for the generation of electric power. A few miles from New Liskeard and Haileybury—growing towns possessing already a substantial appearance, such as would astonish those who saw them only five or six years ago, are falls on the Quinze River, which have been examined by engineering experts and pronounced good for waterpower purposes. There is a strong feeling in fact in this district that, with its manifestly fine resources not only in the shape of waterpower, but of enormous timber wealth, efforts should be made looking toward the location of at least one pulp mill. We hope to be in a position at an early date to furnish data with this end in view. One thing may be said in this connection, that the people of this great northern region, the opening up of which will mean so much to the whole province of Ontario, which indeed will practically treble the area of the province, do not mean to allow the grass to grow beneath their feet. They are becoming seized of the marvellous potentialities of the land and forests surrounding them and mean to develop their resources to the last degree.

THE FORT FRANCES POWER QUESTION.

After a stormy time in Fort Frances, at mass meetings and otherwise, in which the sacrifice of Canadian resources to United States interests was roundly denounced, and at which, if such were finally done, the resignation of the local member of the Legislature was loudly called for, The Ontario Government has at length come to a decision in connection with the application of the Fort Frances Power Co. for permission to export power to the American side. The first step in this matter was an agreement between the late Government of Ontario and Mr. Backus, of Minneapolis, in February, 1904. Mr. Backus owned the waterpower and land on the American side, and desired to obtain waterpower rights on the Canadian side in order to develop the full capacity of the fall. The agreement provided for the sale of the waterpower to Mr. Backus, stipulating that one-half the power developed should be available for use on the Canadian side, and that the rates charged consumers in Ontario should be subject to the control of the Government. In 1905, this agreement was surrendered and a new one entered into, requiring instead of one-half the total quantity of power to be retained on the Canadian side, that only 4,000 horsepower should be so retained. The company, having completed the works and installed the plant for power development, found that there was little or no demand for power on the Canadian side. They, accordingly, asked at Ottawa for permission to export 6,000 horsepower to the American side. This

was granted, subject to the consent of the Ontario Government. Fort Frances, however, objected. It was contemplated almost from the first that the power developed by Mr. Backus' company might not all be required in Canada and would consequently lie idle, unless they were authorized to export it. By an order-in-Council just passed, the company is permitted to export not more than 6,000 horsepower to the United States. The order, however, obliges the company to keep constantly available on the Canadian side at least 1,000 horsepower, and if at any time industries should be established on the Canadian side requiring the whole or any part of the 6,000 horsepower, then, on the demand of the Government, the quantity so required shall be restored for use on the Canadian side. The company gives a guarantee company bond forfeiting \$50,000, as liquidated damages if any such order is not obeyed, and in addition incurs a penalty of \$100 for every day's delay in returning the power to the Canadian side. Further, and as an absolute remedy, in the event of the company not complying promptly, the Government has the right to place the sheriff, or other officer, in charge of the company's premises and cut the connection so as to forcibly put a stop to the exportation of power.

To sum up—one-half the full power developed at the falls is to be available on the Canadian side if required, but there is always to be, whether required or not, at least 1,000 horsepower retained and available, and in the event of a demand arising for more than 1,000 horsepower it is to be immediately provided up to the maximum quantity, viz., one-

half the full power developed at the falls, and at a price to the Canadian consumer to be, in every case, fixed by the Hydro-Electric Commission. Meantime dispatches from Fort Frances indicate that the people there are by no means satisfied with the Government's decision.



PAPER EXPORTS TO UNITED STATES.

A feature of the paper trade during the past few months has been the enormous increase in the shipments from this country to the United States. This has been particularly noticeable since the enactment of the new Payne-Aldrich tariff law. In March, 1909, the United States imported from Germany printing paper to the amount of 253,622 lbs., from Canada 3,431,583 lbs., and from all other countries 216,628 lbs. A year later the figures were 142,761 lbs., 11,551,041 lbs., and 307,985 lbs. respectively. During the nine months ending March, 1909, the United States imported from Germany paper to the quantity of 1,141,150 lbs., from Canada 26,272,038 lbs., from all other countries 1,137,605 lbs., while in the nine months ending on the same date this year she imported from Germany, 999,429 lbs., from Canada 57,278,541 lbs., from other countries 1,791,965 lbs. In other words, the United States took considerably over twice the quantity of paper from Canada during the nine months ending with March 31st last that she did in the same period a year previously, while, referring to the month of March alone, she took over three times as much, while her imports from other countries showed comparatively small gains. It is probable that the importation for March was

swelled through the desire to avoid the looked-for higher duties through the maximum clause of the new tariff.



—A Washington despatch of 9th states that the Treasury Department has handed down a decision that "pulp and printing paper manufactured from wood cut on Crown lands in the Province of Quebec prior to May 1st last is subject to the countervailing duty of 25 cents per cord, or its equivalent of 25 cents a ton, in the manufactured state as print paper, as provided by the new tariff law. However, similar products manufactured from wood cut on Crown lands in Quebec after May 1 are not subject to the countervailing duty." This decision, therefore, is retrospective and does not apply to these products shipped to the United States under the new Quebec law.



—The Riordon Paper Company has concluded to construct a new mill at Merritton, Ont., in the Niagara District. The new mill will be a ground wood mill and will add materially to the effectiveness of the plant of the company already in existence at Merritton. This Riordon plant, together with the new mill of the Lincoln Co., spoken of in the last issue of the "Pulp and Paper Magazine," will add materially to the prosperity of Merritton. The new Lincoln mill, as may be remembered, was purchased from the Canadian Colored Cotton Mills. It is now being equipped and will be ready for operation some time in August. It will manufacture fine manilla paper and it is reported in the paper trade that it will make a very complete and high-class plant and should turn out a first-class product. The company has erected a splendid new building from cement and steel wherein to install the machinery and is taking every precaution to ensure modern practice.

DEATH OF J. C. LANCELIER.

With deep regret we heard of the death of J. C. Langelier, Superintendent of Forest Rangers of the Province of Quebec. Death came suddenly from syncope, when he was on a tour of inspection at New Carlisle. Deceased was 65

**J. C. LANCELIER.**

years of age. He was a son of the late Capt. Louis S. Langelier. Chief Justice Francois Langelier and the Hon. Charles are brothers. He leaves one son, Mr. Gus Langelier, and a daughter, Mrs. D. J. Perry. The late Mr. Langelier was appointed Superintendent of Forest Rangers of Quebec in 1897, in which position he displayed great capacity and energy and carried out a number of important reforms by which the successful administration of the Lands, Forests and Fisheries Department of the Province of Quebec was greatly facilitated. In matters connected with the pulp industry, Mr. Langelier was an expert, and this magazine always found him generously ready to impart information of a valuable kind whenever needed. Mr. Langelier was also an able journalist, and besides acting as editor of "Le

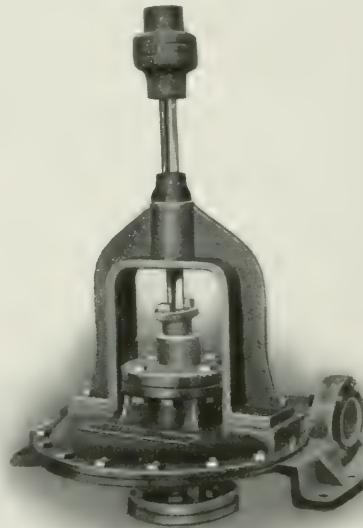
Courier de St. Hyacinthe," "La Nation," etc., was a frequent contributor to influential French newspapers in his province. He was asked on more than one occasion to enter Parliament, but was of a retiring disposition, and always refused to become a candidate.



The St. Lawrence Paper Mfg. Co., Mille Roches, Ont., has just erected another three-storey stock room, which was made necessary by the recent addition of another paper machine. The company intends to still further increase the capacity of its mills.



The accompanying cut illustrates a Vertical, Suction Pattern, Centrifugal Pump, as built by the Smart-Turner Machine Co., Limited, Hamilton. These pumps can also be used as a submerged



pump. The top of the yoke acts as a thrust bearing, supporting the entire weight of the shaft. All the wearing parts can be removed from the pump without disturbing the suction or foundation bolts.

PULP AND PAPER NEWS

—The Adams Lumber Company, Longford Mills, Ont., will deal in pulpwood.

* * *

The Foley-Rieger Pulp & Paper Company, Thorold, Ont., are already talking of extending their plant.

* * *

Douglas & Ratcliff, Limited, paper dealers, Toronto, are erecting a three-storey addition to their warehouse.

* * *

J. R. Booth's cardboard mill in Ottawa is running full of orders, although it is not long since the mill was started.

* * *

F. Philippe, an employee in Booth's pulp mill, Ottawa, fell forward on a bark-ing machine, and was severely lacerated.

* * *

Ritchie & Ramsay are adding several new machines at their coating plant in New Toronto, and will double the mill's capacity.

* * *

J. R. Manning, of Owen Sound, is interested in a project for establishing a wood pulp factory in the neighborhood of Peterborough.

* * *

J. A. Christie has become a partner with his brother, John Christie, in the firm of Christie Company, Toronto, dealers in rags and paper stock.

* * *

The premises of McFarlane, Son & Hodgson, Limited, paper merchants, Winnipeg, were damaged by fire to the extent of \$50,000.

* * *

Joseph H. Gain, son of Thos. Gain, sales manager for the Don Valley Paper Mills, was married to Miss Winnifred McFarlane in Peterboro.

* * *

The Canada Coating Mills, Limited, Georgetown, will build a large extension to the mill, and add three machines. Business with the company is good.

We understand the new pulp mill project for Kenora, Ont., is making head-way, and hope to be in a position to give fuller particulars at an early date.

* * *

F. T. Barber will act as manager of the the building paper factory and ware-house which the B. F. Nelson Mfg. Co., Minneapolis, propose to erect in Winni-peg.

* * *

The Toronto Paper Mfg. Co., whose mills at Cornwall, Ont., had to close down owing to repairs to the canal, has resumed operations, with plenty of orders on hand.

* * *

W. J. Gage, of the W. J. Gage Com-pany, paper dealers, and the Kinleith Paper Mills, St. Catharines, has been elected a director of the Imperial Bank of Canada.

* * *

J. B. Piper, who has been for the last eighteen months Toronto representative of the New Brunswick Pulp & Paper Company, Millerton, N.B., has severed his connection with that firm.

* * *

The Powell Lake Pulp Company is making application to the British Columbia Legislature to secure the site at present used by the Sayward Lumber Company near the mouth of Powell River.

* * *

Setso: Cutter & Company have offered to lease the Mispec pulp mill from the city of St. John, N.B., at \$2,500 per year, or to buy the property for \$30,000. The city wants to lease it for a term of years.

* * *

The United Paper Mills Company is being organized in Toronto with a capital of \$40,000, to make pulp and paper. M. W. Wilkins, I. E. Young, and R. I. Finlay, (10 Albany Ave.), Toronto, are pro- visional directors.

Edwin Crabtree & Sons, Crabtree Mills, and St. Paul d'Industrie, Que., whose mill usually is devoted to the production of wrapping and sheathing papers, has gone over to news, owing to the keen demand from the United States.

* * *

The new Harper fourdrinier in the E. B. Eddy Company's mill, at Hull, is now installed. It replaces the cylinder tissue machine and makes a duplex sheet. The company needed a larger machine to meet the growing demands of its business.

* * *

The Geo. Powley Paper Company, Toronto, has appealed against the non-suiting of its case against Mickleborough Company. This was to recover \$303 damages to plaintiff's stock from water being negligently left to flow from a tap in defendant's premises above.

* * *

John W. Sobey, head lumberman for the Dominion Pulp Company, is leaving Newcastle, N.B., with thirty picked stream drivers for Grand Falls (Nfld.), to place them with the Harmsworth Company there, in response to a telegram received a few days ago.

* * *

The Quebec Government will establish a school of forestry in Quebec City, probably in connection with the Laval University. The name of Mr. Piche, of the Crown Lands Department, is mentioned as the probable professor in charge of the department.

* * *

Prof. B. E. Fernow, Dean of the Faculty of Forestry of the University of Toronto, has gone to Nova Scotia to complete the forest survey begun in that province last year. He expects to complete the survey of the eastern half of the province, including Cape Breton.

* * *

Contract for issuing a new Public school grammar has been given by the Ontario Government to the Holland Linen Paper Company, Toronto; and one for

the new arithmetic to Robert Simpson Company, Toronto. The books will retail at 8 to 9c. per copy, instead of 25c. as heretofore.

* * *

The Toronto Paper Manufacturing Company held their annual meeting last month, at which very satisfactory reports were presented. J. R. Barber, president, and the other officers and directors were re-elected. The volume of business transacted was materially in advance of that of the previous year.

* * *

The National Bag & Paper Company, recently incorporated with a capital of \$250,000, plans to build a mill in Ottawa for making pulp, paper and millboard at an early date. Among the incorporators are J. F. Booth, W. Anderson, H. K. Egan, W. S. Dwyer, of Ottawa, and J. W. Hennessy, (president), of Fort Coulonge. A three-storey building 210 by 80 is to be built at once.

* * *

The annual meeting of Brunner, Mond & Company, Limited, was held in Liverpool, last month. Gross profits showed an increase compared with the previous year of £44,000. The sum of £150,000 was added to reserve fund. It was decided to pay dividends at rate of 27½ per cent. for the year ended March last.

* * *

The steamer Fram arrived in Portland, Me., from Chatham (N.B.), bringing the first cargo of 50,000 cords of pulpwood contracted for by the International Paper Company in New Brunswick. The Fram brought 1,300 cords. Two steamers will be engaged in the pulpwood carrying business between Chatham and Portland this season.

* * *

The Waukesha Pulp Co., Ltd., Montreal, capital \$100,000, has been incorporated to purchase or acquire saw mills, pulp and paper mills. The incorporators are W. Kearney, merchant; J. M. Collins and M. J. McCrory, agents; Patrick Mullin, Jr., accountant; T. D'Arcy Tansey and R. E. Elliott, dentists, all of Montreal.

Swanson Bay Forests Wood Pulp and Lumber Mills, Ltd., Ottawa, capital \$1,500,000, have been incorporated under a Dominion charter to carry on business as pulp, paper and lumber merchants, saw mill proprietors, and to cut and manufacture pulp and all articles into which wood enters. The incorporators are W. L. Scott, C. H. Maclaren, Austen G. Ross and G. D. Kelley, barristers, and J. Connolly, law clerk, all of Ottawa.

* * *

The Eastern Canada Lumber and Construction Co., a New York concern, has purchased some 20,000 acres of valuable timber lands, large saw mill, etc., comprised in the Prescott property in Albert County, New Brunswick. The deal, it is said, involved something like \$200,000, besides \$100,000 for a branch railway and other works. W. H. Malcolm is president, and Jas. W. Clow, secretary, both of New York City.

* * *

Mr. Bremner, of Vancouver, is asking the B. C. Government for concessions for a new sulphite pulp manufacturing company being organized. The company is willing to enter into an agreement to establish a mill with a production capacity of thirty tons of air-dried fibre per day, and would further in all probability increase their capacity to one hundred tons per day, conditional upon which they asked for proportional increases of land—that would be one hundred square miles of government reserved land and one hundred miles of logged-off lands.

* * *

On another page in this issue will be found an announcement of the Manson Company, Thorold, Ont., of their new improved centrifugal screen for screening mechanical and chemical wood pulp. The Manson Company have for the past three years been manufacturing the well-known "Ruth" centrifugal pulp screen. Ten of their new screens have been sold during the past month, and the manufacturers claim it is the leading pulp screen on the market to-day.

John P. Riley, formerly of the International Paper Company's mill at Bel-
low's Falls, and who went to Newfoundland to take charge of the large paper mills being built at Grand Falls, has, it is said, resigned and returned to the United States. The mill at Grand Falls is now practically completed and three machines began making paper a week or two ago. The three machines are each 144 inches wide and are producing now 50 tons of news paper daily, all being shipped to London, where the mill is owned.

* * *

—A considerable overproduction of ground wood-pulp has taken place in Sweden and Norway during the past part of this year. Many new mills have started up and it also looks, as if the growing production of ground wood pulp in Canada and Newfoundland should influence the market for the products of the Scandinavian mills. Considerable reduction in the output has been proposed and already decided by many mills, but it is hardly to be expected that all mills will join in a general reduction.

* * *

We have received with pleasure a copy of the first annual report of the Commission of Conservation for Canada, giving the papers and addresses given at the first annual meeting, held in Ottawa, last January. Many of these addresses, delivered as they were by experts upon the special lines treated of, are well worth, not only reading, but preserving for future reference. The same may be said of the illuminating inaugural speech by Hon. Clifford Sifton, the chairman of the Commission. We may mention that the Secretary of the Commission is James White, Ottawa

* * *

—D. Sullivan & Sons, Red Bank, N.B.; Mr. Frank Low, Ottawa, Ont.; Wagstaff, Limited, Hamilton; Arthur A. Ward, Moyie, B.C.; the St. Lawrence Paper Mills, Limited, Mille Roches, two Triplex Stuff Pumps, and two Horizontal Simplex Vacuum Pumps; W. H. Weller.

Port Colborne, Ont.; the Foley-Rieger Pulp & Paper Company, Thorold, two Centrifugal Pumps; W. Hamaker, Port Dover; W. Harris Company, Toronto; J. W. Holmes, Nelles Corners; the Standard Vinegar Company, Stouffville, Ont.; the Corporation of Chatham Waterworks System; the Great Lakes Dredging Company, Port Arthur, Ont.

* * *

The Pacific Pulp and Power Company is being organized in Montreal. The new company has extensive limits near Prince Rupert, B.C. It is principally pulpwood and fine clear cottonwood, chiefly located on numerous small islands in the rivers, and quite easy of access. Mr. James Robinson, ex-M.P., of Miramichi, N.B., is at present the largest shareholder in the new syndicate. As well as carrying on a general lumber business, the company intends to generate a large amount of horse power (the first development to be about 15,000 horse power) at Union Creek, 16 miles from Port Simpson and 30 miles from Prince Rupert.

* * *

A company has been formed under the name of the Georgetown Coated Paper Mills, Limited, to manufacture coated paper in Georgetown. Among the incorporators are L. E. Fleck, who was formerly superintendent of the Canada Coating Mills, Georgetown; F. M. Scarff, manager of the Merchants' Bank, Georgetown; J. A. Willoughby, Georgetown; W. H. Wallbridge, Toronto. A site has been selected near the above-named factory. The buildings, which are to be erected this summer, will be of reinforced concrete throughout, and will consist of a three-storey main building, 265 feet by 66 feet, one building 40 feet by 50 feet, another 28 feet by 34 feet, and another 14 feet by 20 feet.

* * *

The Sovereign Bank is suing Parsons Bros., paper merchants of New York, to recover \$15,028 and costs. The bank

claims that the defendants made a three-year contract with the Imperial Paper Mills, of Sturgeon Falls, for a supply of paper, and plaintiffs were assigned to collect payment for the paper shipped, but so far, however, have been unable to do so. Defendants claim that the Imperial Paper Mills did not abide by the contract, and consequently they, the defendants, refused to pay for the paper they did not receive, because they sustained a loss owing to the breach in the contract, equal to the amount in question.

* * *

The mill of the Beauce Pulp and Lumber Company, the property of Messrs. Gooday & Foy, merchants, of Quebec, and situated at Scott's Junction, Beauce County, was destroyed by fire. There was a considerable quantity of lumber and pulpwood around the mill, and it was feared that the village would fall a prey to the flames. A despatch was sent to Mayor Drouin, of Quebec, for assistance, and a fire engine with a detachment of the brigade was sent by special train to the scene. The fire-fighters succeeded in confining the fire to the mill, and a small quantity of pulpwood. The loss is estimated at about forty thousand dollars, covered by insurance. Progress is already being made in the rebuilding of the mill.

* * *

C. Jackson Booth, of the Booth Mills, Ottawa, has come into a good deal of criticism for a remark attributed to him, in connection with some views he expressed on the subject of changing hours. Mr. Booth was quoted as saying that while it would be pleasant for the men to get out early in the summer afternoons he regretted the "habit of many of the men in frequenting saloons in their leisure time." The men make many strongly-worded denials of the charge. They should remember, however, that Mr. Booth only referred to some of them; and that it is an old story that the many

often suffer in reputation for the few. Mr Booth, we are sure, would be the first to give full credit to those who are not in the habit of drinking in their spare time.

* * *

According to the terms of an order-in-Council just issued at Ottawa, the entire eastern slope of the Rocky Mountains from the international boundary northward to a short distance north of the 54th parallel of latitude is now reserved from settlement or occupation, and will be administered entirely with a view to the proper utilization and reproduction of the forest, the protection of the water supply of the prairie provinces, and other related objects. Such is the effect of an order-in-Council just passed. The total area of the district now reserved from settlement along the eastern slope of the Rockies in Canada is about 14,400 square miles. Adjoining this to the south is an area of 1,400 square miles similarly reserved by the United States Government, and known as Glacier National Park.

* * *

An important judgment affecting water powers in the province of Quebec, was given by Mr. Justice Champagne, in the Superior Court at Hull recently. By the judgment, property owners along the Gatineau River are the rightful and legal proprietors of the bed of the river. The importance of it is due to the fact that there are very valuable water powers on the Gatineau, and the judgment affects not only the rights of property owners on that river, but also of every river of a similar character in the Province of Quebec. The direct issue was a case by David Marshall and others, against Hanson Bros., brokers, of Montreal, with the Attorney-General of Quebec intervening. By the judgment the province loses principally, because it

cannot sell innumerable water powers along such rivers to companies and others endeavoring to secure possession of these valuable assets either for immediate development or for speculative purposes.

* * *

An action, brought by Samuel A. Marks, of Toronto, against the Michigan Sulphite Fibre Company, has at last been disposed of by Chief Justice Falconbridge, after eleven years in court. Marks claimed to have sold a certain consignment of pulpwood to the Fibre Company, through J. Nesbit, of Sarnia, in April, 1894. In 1899 a writ was issued and served on the company. Nesbit is claimed to have said: "That's my matter; I'll take care of it." "He was allowed to take care of it," says the Chief Justice, "with the result that judgment was given against the company in May, 1899. The defendants now claim that they knew nothing of this judgment for 10 years." An order for the re-opening of the case was recently secured by Marks, with the result that the Chief Justice dismissed the action, on the ground that there is no proof that Nesbit was the agent or employee of the Fibre Company. "Meanwhile," concludes his Lordship, "the plaintiff has lost his right, if any, against Nesbit, who has been dead two or three years."



Under a new trade agreement just completed with Italy, Holland, and Belgium, Canadian wood pulp and several kinds of paper (including news), will enter those countries under the conventional customs rates, which are considerably lower than the general tariff.

* * *

Empire Paper Box Company, Limited, Montreal, has been incorporated; capital, \$49,000, to make paper and products of same. E. A. Bernard, A. H. Sims, and J. R. Gordon, all of Montreal.

INTERNATIONAL STRIKE SETTLED.

The International Paper Company's employees have returned to work, the strike having been settled after having been in operation since early in March. The cost to the company and men is said to aggregate fully \$500,000, affecting 7,000 workers. The basis of settlement, according to officials of the company, gives the men nothing but what they could have had or the company would have granted before the strike began. The men were called out without any demands being made upon the company, and the only alternative was to fight to keep its mills going. By the terms of the settlement the men claim they won the increase in wages, elimination of Sunday work and what amounts to recognition of the union. Credit for settling the strike is given to the State Board of Arbitration.



SIZING WITH STARCH.

Translated for Pulp and Paper Magazine
by C. E. B.

Following Kinds of Glue are Used:

I.—Animal glue is used for most of the paper coated in England, and it is of importance to take only glue made of skin for this purpose. Special brands are manufactured for the coated paper industry, and at least 95 per cent. come from the continent.

II.—Casein. This kind of glue is obtained from milk after all the fat has been skimmed off. The milk is treated with acid and the precipitate is washed, dried and ground. More has been written about casein than about animal, or any other kind of glue, but it is still difficult to prepare the solutions and mix them with other materials, especially mineral.

Casein was introduced in England as a glue for coated papers in 1897, but was not appreciated in the beginning, as the methods of preparing the solutions were different from the methods used before, when glue was used exclusively. The great saving, which can be effected with casein, however, caused some coaters of paper to take the matter up. Casein gives a high gloss with satin white, and as the coating can be made absolutely waterproof by using formaline, it is especially suitable for coating cover papers for boxes, etc.

Casein is much more in use on the European Continent and in America than in England, and it is doubtless unequalled for certain illustration paper. The price of the casein varied for several years between £20-25 per ton; but afterwards the price started to rise slowly on account of the fact, that the product was being used also in other industries, and because the milk gives a higher profit, when used for cheese manufacturing: In the year 1908 the price was £30, and the present price is about £40. This price restricts its use as a glue for coated papers to certain qualities, for which it is especially suitable.

III.—Starch products. The fact, that the same weight of starch has the same, if not greater gluing power as animal glue, caused it soon to be regarded as a possible substitute for animal glue for paper coating purposes. The problem was to find a glue, which could take up a considerable quantity of mineral matters without losing its glueing qualities.

It has been found, that a glueing material, a solution of which—poured out on glass—does not dry to a coherent film, is not suitable for paper coating. If the solution dries to a brittle substance, as in the case with common, soluble starch, with or without borax, it cannot give a tight surface to the paper. This will cause trouble in calendering and also in printing.

(To be Continued Next Issue).

MONTREAL PULP AND PAPER MATTERS

(Special to "Pulp and Paper Magazine").

Montreal, June 11, 1910.

The first shipment of wood pulp and print paper ever exported to the United States from Newfoundland was received in New York during May. The consignment came in under the new tariff Act. It consisted of 940 bales of wood pulp and 1,607 rolls of paper. It is to be used in newspaper making. The new move, made necessary through the curtailment of home production, may, it is thought, have far-reaching consequences and possibly result in a readjustment of prices.

Newfoundland's Progress.

Mr. Barrington Hooper, who has been making a tour of Canada and Newfoundland as special correspondent for the "London Daily Mail," arrived in Montreal on his way home. He had come direct from Newfoundland, and was enthusiastic over the success attending Lord Northcliffe's enterprise in that colony in the establishment of big pulp and paper making works.

"Despite the dismal prognostications of failure made by jealous New York papers," said Mr. Hooper, "the scheme is proving an unqualified success and the Harmsworth publications are assured of a paper supply for all time. It is only three years since the scheme began to be realized, and yet all the paper now used in the printing of the "Daily Mail" is being manufactured at this plant. Besides that, huge quantities of pulp are being exported to other paper mills, and experiments are now in progress with a view to making the finer quality paper used for the magazines of the Harmsworth publications. There is a population of between four and five thousand people now engaged at these works at Grand Falls, Newfoundland. Lord Northcliffe has built up a model town and a harbor of his own, and now

runs four steamships between Newfoundland and England, giving a weekly service. He endowed a public utilities fund for the town of Grand Falls with \$10,000. Then he established a co-operative store, and various other enterprises, all the profit of which goes to this fund, which is used for such purposes as they may decide on, such as providing parks, recreation ground, and numerous other things of public benefit. Since the fund was started it has grown to \$40,000."

Mr. H. R. Reid, of the Reid Newfoundland Company, says that the pulp industry is to be immensely exploited in Newfoundland shortly by several American and English firms. Mr. Reid also states that various Newfoundland schemes are now attracting a great deal of attention in the big financial centres in the United States and England.

Lumber Merchants on Quebec Stumpage Dues.

A big delegation of lumber merchants conferred with the Quebec Government at the end of last month, and complained that the increase in stumpage dues provided for in the Government's new law would seriously injure the lumber industry, and would be especially prejudicial to the lumber merchants of the Gaspé coast. They asked that the old rate of 65 cents on cedar should remain the same, and not be increased to \$1.40, as provided in the law. A great many mill-owners were carrying over shingles that they had last year. An increase in the dues would simply mean the shutting down of the mills. They asked that the stumpage on fir be limited to 40 cents.

The reduction in dues should be particularly applied to the Gaspé coast, where circumstances made lumbering

unprofitable and rendered it difficult to compete with other lumbermen of the province. Special encouragement should be given to those who erected pulp mills on the Gaspé coast. Companies willing to invest capital in the erection of mills should be given a twenty years' guarantee from the Government instead of ten years, under the present regulations, so that the owners might be given an opportunity to float their bonds, it being impossible to raise money for pulp and paper mills with a ten years' guarantee. The delegation was introduced by Mr John Hall Kelly.

Views on Reciprocity.

"Free paper, free pulpwood," is to be the watchword of the lumbermen of Quebec in the coming reciprocity negotiations with the United States. Whether, in view of the importance of the conservation of the timber resources of the province, that policy will be adopted by the Quebec Government is another question.

"If the United States," said two prominent lumbermen, "is willing to admit our paper free of duty, we do not think Quebec would stand in the way of an agreement. If we cannot compete with them on that basis, we might as well lie down and die at once."

The action of the United States, it was explained, in removing the countervailing duty of thirty-five cents a ton on pulpwood cut from Crown lands in Quebec was inevitable after the change in the policy of the Quebec Government. Quebec and Ontario are now on the same basis as regards the American market. Print paper from the Crown lands of both provinces now pays \$5.75 a ton in duties. This is composed of the regular duty of one-tenth of a cent a pound which the Payne tariff imposes on paper from provinces which prohibit the export of the logs. Both men agreed in placing the Crown lands at 140,000 out of a total cut of 1,000,000 cords; or about one-seventh of the total cut. The importance of this statement lies in the

fact that it is only to the Crown lands that the policy of prohibition of export applies. It follows that it is only on paper manufactured from logs cut on Crown lands that the additional duty of one-tenth of a cent a pound, or \$2 a ton, must be paid. The paper made from wood cut on private limits enters the United States at the rate of \$3.75 a ton.

The policy recently put in force was announced many months ago, and in the meantime the American mills have been making hay. They have done this in two ways. It is known that the International Paper Company has cut very largely in excess of its immediate needs on its Crown land limits during the past year. These logs, having been cut under the old regulations, can still be exported from the province. In regard to the other means of protection which the American paper interests have taken, knowledge is less definite, but it rests upon moral certainty. Six-sevenths of the spruce lands of the province being in private hands, representatives of the American mills have been busy among the owners, and it is now supposed that American holdings have been considerably strengthened.

Fires in Pulp Mills.

Fire did about \$5,000 damage recently to the plant of the Nicolet Falls Pulp Works, situated about two miles from Danville, Que. Fire was discovered in the dry house and boiler room. The brick factory building was saved, but the boiler house and dry house with the boiler and machinery were completely destroyed. The property was insured.

The mills of the Anthony Lumber Company, at South Maitland, N.S., were destroyed by fire on June 4th. The loss will be about \$90,000, on which the insurance is about half that amount. The chief owners of the mill are New Yorkers, A. S. Horsley, of that city, being managing director. The mill was the best in Nova Scotia, with one ex-

ception, that of the Davison's, on the La Have. The power house, which was of brick and steel, alone escaped. The company has three million feet of logs ready to be cut. The output found its market in Boston and New York.

Lumber in New Brunswick.

Better news is being received from the stranded lumber drives on the upper St. John, N.B. It is raining, and there seems to be good prospect of the lumber getting into the corporation limits. Mr. Kilburn, John A. Morrison, and F. C. Hoinard have about 12,000,000 feet hung up 22 miles from the corporation limits. The St. John Lumber Company have 160 men on this drive, and a slight rise of water would assist materially in bringing it out. Mr. Kilburn reports that the big jam abandoned several weeks ago within five miles of the corporation limits, has been gotten out in safety. It contains about 14,000,000 feet, belonging to the St. John Lumber Company, and Kilburn and Morrison.

The Dominion Pacific Lumber & Pulp Company has been formed by Montreal capitalists, and will have an authorized capital of \$3,500,000. The amount to be issued at present is \$2,500,000, divided into \$1,250,000 seven per cent., cumulative preferred stock, and \$1,250,000 common stock. The par value of each will be \$100. It is understood that Sir Montague Allan and Senator Mackay are prominently associated with the company.

Coal, Etc., in Newfoundland.

Sir Edward Morris, Prime Minister of Newfoundland, who passed through Montreal some time ago, had much to say of the mineral deposits of Newfoundland, as well as of the strides being made by the pulp and paper industry. The output of pulp and paper from the Harmsworth Mills will not be less than \$3,500,000 per year, that from the Albert E. Reed mills being \$2,500,000. These figures alone were almost equal to the value of the entire fisheries of the Island and would necessarily add a

great deal to the industrial activity of the country. Already this was to some extent shown in the demand of the Reed Co. for coal, such demand being equal to about 50,000 tons of coal per year. The Colony imports 200,000 tons of coal per year, so that the total consumption would not be less than 250,000 tons per year. An English company has recently entered into an agreement with the Government to undertake the exploration of coal areas near the Harmsworth Mills at Grand Falls and the Reed enterprise at Bishop's Falls, and if they are successful the Island will cease to import. The Harmsworths are resuming operations on an ore body, consisting of zinc, lead, silver, copper and gold, which was discovered a few years ago in the lumber woods near Red Indian Lake, by one of their surveyors. Some work was done upon the property at the time, but had to be abandoned owing to activities of the Harmsworths in other directions.

A quarter million dollars and 40 per cent. of the future earnings, was the price paid by a syndicate of Americans, principally New Yorkers, to three St. John's, Newfoundland, men, for 13,000 square miles of Labrador timber lands. A \$25,000,000 corporation is being formed to operate the timber lands, extending from Bryson's Bay on the north side of Hamilton Inlet, to Port Manners. Pulp mills will be erected at various points to manufacture the spruce into pulp. The Newfoundland Government received \$55,412 as timber fees through the transaction.

Paper in Mexico.

Hon. J. D. Rolland, who returned from a visit to Mexico recently, expresses the opinion that he can do business in certain lines of paper with that country, the Mexicans being desirous of trading with Canada. Both General Diaz, the perpetual president, and Senor Limantour, the perpetual head of the Finance Department, had expressed themselves as desirous of trading with Canada, as far as their protective policy would permit.

New Brunswick and Nova Scotia Legislation.

One of the leading pulp and paper manufacturers of Montreal, in speaking to the Pulp and Paper Magazine to-day concerning the recently enacted legislation at Quebec, said: "We do not look for any very startling results to follow the action of the Quebec Government. This action was not in any degree sudden and its effect had all been discounted by the trade. The action was the result of a systematic campaign, carried on during the last half a dozen years and is approved of by practically the entire trade." Asked if he thought New Brunswick would take similar action, he said: "I have not the slightest doubt that the Government will take action in the matter. A report will be presented there before very long and in my opinion the matter is practically settled already. Not only do I expect New Brunswick to take this action, but also Nova Scotia, although the action of the latter province may not be taken at as early a date."



BOARD MAKING.

The following remarks deserve attention as they are the result of practical experience in making boards and heavy packings. They deal with subsidiary materials which can be used for cheapening the prime cost of the products.

Potato stalks should be chopped up before going with the other materials to the hollander, and should be dried first if very sappy and pulpy. Time is saved by the chopping, as the time occupied in the chopping is more than made up by saving in the time required in the beater. The pieces should be about four inches long. That nothing is gained by previous boiling of the stalks has been amply proved. The use of potato stalks alone is impracticable, for they yield too weak a paper, and are unprocurable in sufficient quantities. The following recipe for

a bookbinders' gray board gives a good general idea of what quantity can be allowed:

	Per cent.
Old Paper	60
Chopped potato stalk	25
Waste fibre from the paper mill.	15

Hay is another subsidiary material, but its use as fodder almost excluded it from the paper maker's catalogue. At the same time old hay can often be procured, as it is too dry for cattle. A little of it can be worked up with old paper waste to considerable profit, but it is quite useless alone.

The following is an illustrative recipe:

	Per cent.
Hay, steamed for 1½ hours at a pressure of from a half to a whole atmosphere	30
Old paper	50-53
Waste paper from the mill...	15-20

Lucerne stalk is another usable substance. This is treated exactly like hay, but gives a larger yield. Paper made with it only is rough and tender. The flowers must be carefully sorted out, as they make the paper very difficult to handle, especially on the wire, and make it extremely brittle. As regards proportions, it is mixed with the other ingredients in the same quantities of hay. In spite of the extremely low price of these stalks it is often difficult to obtain in any reasonable quantity.

Grass has actually been tried. In the year 1899 a big paper mill in Upper Bavaria tried working up cut grass in the pug mill with different proportion of old paper cuttings, varying from equal weights of each to one of grass to five of paper. So far as the grinding in the pug mill was concerned all went well, and the mixed pulp was of a dark green hue. On the wires, however, came disappointment, for most of the grass went into the backwater. On drying, the web assumed a dirty, light gray colour.

Maize stalks yield but a small percentage of paper pulp, but can be used when they can be obtained grown on the spot.

They will not bear the cost of carriage. They are cut up like potato stalks, and can then be put direct into the pug mill. It is better, however, to scour first, but scouring must be followed by a treatment in the mul, however disintegrated the stuff may appear to the eye. The proportion to mix with the main ingredient is not yet fixed, but it is sure to be less than with hay or potato.

Nettles (stinging nettles) are very fibrous and can be made to render good service, but of course only when there is a plentiful supply in the immediate neighborhood. It is, perhaps, hardly necessary to say that this condition must be fulfilled in the case of all subsidiary materials mentioned in this article. The nettles are plucked when the seeds ripen, scoured gently in the spherical boiler, and then put direct into the hollander. A somewhat higher percentage can be used than of potato stalk.

Reeds form another accessory cheapening material. Chopped up and otherwise treated like potato stalk, and used to the extent of 30 to 35, they give very good boards and wrapping paper, much resembling those made with straw. The percentage just given must not be exceeded, or the paper will be brittle. It can be mixed freely in all proportions with straw for pulp making, for the reed differs from straw only in being a little darker and rather coarser in the fibre.

Bracken is the next on our list. It is tough and gives a pulp much resembling brown mechanical stuff. It must be cut the moment it is quite ripe, but not before, and given a slight scouring in the spherical boiler, after which it goes straight to the hollander. It can be mixed in with the main ingredients to the extent of at least 35 per cent., and is probably the best of all the accessory substances we have mentioned in the course of these remarks.

It will scarcely be believed that an Austrian paper mill has tried to use the dead leaves brought down by autumnal floods and collections from their turbines and sluices. The attempt resulted in the production of a dirty, dark gray paper of

inferior strength, but still not quite valueless. The proportions observed in mixing the pulp are not stated.

The reader will see from the perusal of the above that wherever he may be it is pretty certain that something which will be useful to him in making common papers is growing at his threshold. Potatoes, grass, nettles, reeds, bracken and dead leaves are all fairly cosmopolitan products.



TRANSMISSION MACHINERY IN PAPER MILLS.

Continuous and uninterrupted service is of so great importance in pulp and paper mills that greater care should be exercised in the choice of equipment than is sometimes considered necessary in other industries.

This applies particularly to the line shafting.

Collar Oiling bearings, combining as they do efficiency, durability and low cost of maintenance are regarded as the ideal line shaft bearing for the pulp and paper mill, and are therefore being generally adopted.

In Collar Oiling bearings, instead of depending upon a loose ring or chain for conveying oil to the journal, a positive means is employed.

Oil stored in large reservoirs in the bottom of bearing is continuously and positively elevated to the top reservoirs by the means of a heavy split collar clamped to the shaft. From the upper reservoirs it flows by gravity over the entire bearing surface. The bottom reservoirs are provided with partitions which insure settlement of any dirt or grit, and the oil can be drained off by removal of screw plugs.

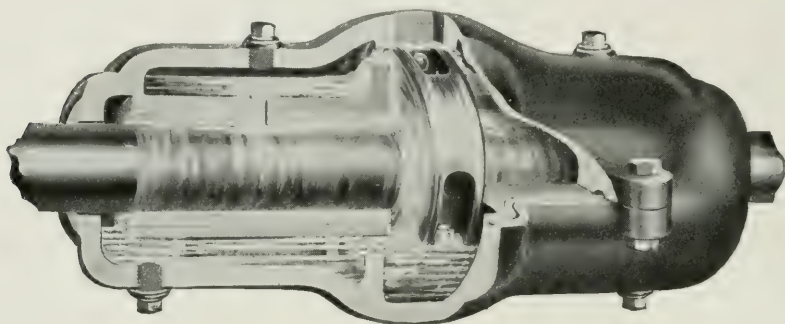
The oil collar also acts as a thrust collar; therefore no outside collars are required unless the end thrust is extremely severe.

The accompanying illustration is a sectional view of the well-known Hill patented Collar Oiling bearing.

Compare the superior action of this bearing with a ring oiler.

Three or four revolutions of the shaft, and bearings are flooded. With other types of line shaft bearings it is necessary for the shafting to be in operation for some length of time before enough oil is conveyed to journal to lubricate it.

Oiling bearing gains in efficiency. The oil collar also serves as the thrust collar, and operates in a bath of oil and thrusts against babbitted seats. All other types of bearings require outside shaft collars, which bear iron against iron with no lubrication.



During this period the wear on the babbitt is excessive, and the power loss large.

It is not only in the positive and copious means of oiling that the Collar

The Hill Clutch Company, Cleveland, Ohio, are the exclusive manufacturers of this type of bearing, and will furnish catalog to all of our readers forwarding request.



The widely-known firm of Edward Lloyd, Limited, paper manufacturers of London, England, have a Canadian branch with offices in the Eastern Townships Bank Building, Montreal, in charge of W. J. Whyte, jr., son of W. J. Whyte, an authority in the British Paper Industry. Edward Lloyd, Limited, manufacture at their own mills the entire supplies required for "Lloyd's News," "The Daily Chronicle" and many other publications. They also own pulp and paper mills in Scandinavia and have large interests in many European concerns. The company does a world-wide business in all kinds of papers, having offices and warehouses in Japan, South Africa, the Australian Commonwealth and Buenos Ayres in addition to the recently established Canadian branch, where samples of all varieties of papers may be inspected. It is Messrs. Lloyds' strict intention to confine their attention to the wholesale trade.

—Among the firms supplied during the past month with pumps, etc., by the Smart-Turner Machine Co., Ltd., Hamilton, may be mentioned the following: Jos. Pelletier, of Amqui, P.Q.; Mr. S. C. Shorey, Napanee, Ont.; the Kirkfield Portland Cement Co., Raven Lake, Ont.; the Pure Milk Co., for two centrifugal pumps, one for the Hamilton works, and one for Silverdale, Ont.; the Nova Scotia Steel and Coal Co., New Glasgow, N.S.; Chas. C. Punchard & Co., Toronto; the F. W. Fearman Co., of Hamilton; Capt. Geo. Ross, of Port Robinson, Ont.; the Canadian Pressed Brick Co., of Hamilton; Edwin Crabtree & Sons, Crabtree Mills, Que.; H. F. way, Brighton, Ont.; the Weston Waterworks, two double-acting triplex power pumps, and one side suction centrifugal pump; the Dominion Milling Co., Dresden, Ont.; the Deloro Mining Co., Deloro, Ont.

BROMPTON PULP & PAPER CO.

The Brompton Pulp & Paper Co., of Brompton Falls and East Angus, Que., are now devoting themselves to the production of kraft brown and have made marked improvement in their output since the first attempts under Mr. Beckwiig's management a couple of years ago. J. A. Bothwell for twelve years with the Burgess Sulphite Fibre Company at Berlin Mills, N.H., took charge of the Brompton mills two or three months ago and important improvements are being made in the methods of handling the wood and pulp. Not only is the plant at East Angus being overhauled under Mr. Bothwell's superintendence, but plans are being made for the erection of a new pulp mill, with a capacity of 12 grinders and 1,000 electrical horse power. The mill will be located on the St. Frances River, a short distance above the present pulp mill. Its product will be used in the East Angus paper mill. In order to fortify itself with the possession of ample raw material the company is acquiring control of the Champoux timber limits and mills in the central Quebec district, and it is reported that \$200,000 has been paid on this property.

**CANADIAN PATENTS.**

The following is a list of Canadian Patents recently granted by the Canadian Patent Office relating to Pulp Industry, and furnished by Fetherstonhaugh & Co., 5 Elgin Street, Ottawa, Canada, Russel S. Smart, Resident, from whom all information regarding same may be obtained.

125136—E. Z. Taylor, Goswell Road, London, Eng. Methods of treating paper and other Vessels with Liquids Mono Service Ltd.



It is gratifying to learn, as we do from a recent report by Aubrey White, Deputy Minister of Crown Lands, that no serious forest fires have taken place in Ontario this season.

CANADIAN WOOD PRODUCTION

The Forestry Branch of the Department of the Interior has just issued its eighth bulletin, entitled "Forest Products of Canada, 1908." This gives the result of the first year's work by the Branch in the collection of statistics regarding the annual production in Canada of lumber, pulpwood, poles and other wood products. The figures have been compiled by Messrs. H. R. MacMillan and G. A. Gutches.

These statistics have been compiled from answers to circulars sent out by the Branch to manufacturers in the different wood-working industries. While it is not claimed that they are complete, yet the figures they give seem to be the most comprehensive yet published.

The work was new, both to the manufacturers and to the officials of the Forestry Branch, and mistakes have no doubt occurred in it. The work is to be continued, however, and increasing familiarity with the work, both on the part of the manufacturers and on that of the Branch will doubtless bring about greater accuracy and completeness in the returns.

The total value of the production of lumber, lath, shingles, cross-ties, poles and pulpwood during the year was \$67,425,044.



—The corporation of Stora Kopparbergs Bergslags Aktiebolag, in Falun, Sweden, the oldest and biggest industrial corporation in that country, which possesses iron and copper mines, iron works, sawmills, paper, sulphite, sulphate, and ground wood-pulp mills, etc., etc., has taken up a loan of about \$5,500,000, of which a considerable part is to be spent on the harnessing of several water-powers belonging to the corporation. A new power station is to deliver the electricity required for the new paper mills at Qvarnsveden, belonging to the corporation, (with four modern American paper machines!

COST-ACCOUNTING PATHFINDER.

Under the above title a valuable little book has been compiled by Frank E. Goodwin, associate editor of "Farm Machinery," and published by the Midland Publishing Co., 800-810 Pine Street, St. Louis, Mo. It may be described as the first complete up-to-date work on this subject, which is looked upon by all far-seeing manufacturers and dealers and business men generally as one of the most important which they have to face to-day. The engrossing subject of "costs" is one that frequently comes up for discussion at conventions and other meetings, but it is generally left indefinite. The object of the book before us is to remedy this deficiency, so that a man may carry on his business not by guess-work, but with mathematical precision as to the cost of carrying on each department. The price of the book is 25 cents in paper cover, 50 cents in flexible cloth, \$1 in full cloth.

**SCANDINAVIAN MARKETS.**

Railroad rates on pulp imported to western states have been reduced, and it is believed in Sweden that a considerable market is offered there for chemical pulp, as a consequence of which prices are already firmer. "Farmand" says that a considerable amount of inquiries in the mechanical section seems to confirm the belief that we have now seen the bottom of the market. Sales for 1911 and later delivery, though still at prices which cannot be described as satisfactory, seem to point in the same direction. There is very little change in the chemical section, though a somewhat livelier inquiry as well as the greater activity of paper factories lately give some hope of improvement. The reduction of wood pulp production was discussed at a conference held recently by the Swedish Wood Pulp Association. No official report has been issued by the association, but it is understood that the efforts to reach an agreement are being kept up, and there is confidence that they will succeed shortly.

BRITISH MARKETS**Mechanical Wood Pulps.**

Low prices are still maintained, and large parcels of pulp are still being offered at very tempting prices, but owing to the majority of buyers being well supplied there is no disposition on their part to make business.—World's Paper Trade Review.

Chemical Wood Pulps.

There has not been much trade during the past week, owing to the holidays in the north. The tendency is for sulphite and soda pulps to be rather harder in price, and papermakers are realising that it is worth their while to contract well ahead.

Chemicals.

Market steady; prices show no alteration. Bleaching powder (soft wood), stands at £4 2s. 6d.; Caustic Soda, 76-77 per cent., £11; Ammonia Alkali, 58 per cent., £4 5s.; Soda Crystals, £2 17s. 6d.; Salt Cake, £2 2s. 6d.; and Recovered Sulphur, £5.

**PULP AND PAPER MARKETS.**

Toronto, June 11th, 1910.

The outstanding feature of the market during the past month has been the extraordinary demand for news print from across the border. Much of this demand was due doubtless to the cessation of operations at several of the International mills owing to the strike. It was believed that when the labor difficulties should have been settled, as now they have been, that the need for paper from this side would die away. So far, however, this has not been the case, and offers of as high as \$2.60 have been made by United States publishers for Canadian paper. A good part of the call upon Canadian manufacturers for paper could

(Continued on page 50.)

The Pulp ^{AND} Paper Magazine of Canada

Vol. 8.-- No. 7. TORONTO, JULY, 1910

{ Canada \$1 a Year
{ Single Copy 10c.

Pulp and Paper Magazine

A monthly magazine devoted to the interests of Canadian pulp and paper manufacturers and the paper trade.

Subscriptions: Canada and British Empire, \$1.00 per year. United States and Foreign, on account of postage \$1.50 per year.

The Pulp and Paper Magazine is published on the second Tuesday of each month. Changes of advertisements should be in the publishers' hands not later than the 1st of the month, and, where proofs are required four days earlier. Cuts should be sent by mail, not by express.

BIGGAR-WILSON, Ltd.

PUBLISHERS.

**Offices, Confederation Life Building,
Toronto, Canada.**

PRODUCTION OF NEWS PRINT

Figures gathered by the Commissioner of Corporations in the United States show that on April 30th, there was 18,060 tons, or less than five days' supply of news print paper in stock throughout the country. On April 30th, 1909, the stocks on hand were 36,133 tons, while at the end of August they were over 53,000 tons. Mr. Norris, at a meeting of the New York State Press Association at Saratoga a few days ago endeavored to make a case against the paper manufacturers of the United States on the ground that they had wilfully curtailed production in order to enhance prices.

"Within three years," he said, "we have had three print paper famines. In twenty months the print paper makers of the country have kept the stock of paper on hand for all the newspapers of the country to an average supply of less than eight days. The mill owners admit that they have produced only ninety-two per cent. of their capacity."

He does not, according to the report in the daily papers, say anything about the strike at the International Mills which can scarcely be said to have been a wilful hindrance of production on the part of the paper makers.

In spite of the above conditions, however, of actual scarcity of paper, Mr. Norris, in a recent bulletin, prophesies cheaper paper with a possible glut by August. While in one place, he decries the narrow margin on which the manufacturers are working, to such an extent, indeed, that for months past only an average stock for eight days' consumption has been on hand for months past, in another place, he states that the tendency of contract prices is downward and that stocks are accumulating. Mr. Norris' forecast of much cheaper paper within a few weeks **may** come true, but, among the trade, his reputation as a prophet stands distinctly low in view of things he has prophesied on previous occasions. We shall see.

THREATENED SUITS OVER THE EIBEL PROCESS

In 1907, Wm. Eibel of Rhinelander, Wis., took out a patent in the United States for an improvement in the Fourdrinier machine, by which a slope was given to the wire from the breast roll to the crouch roll, the stock being thus moved along by gravity, and resulting in a gravity feed for the machine. This patent was assigned to the Eibel Process Company of Portland, Maine, and patents were taken out in Great Britain and other countries. The British patents were acquired by a company in London, "The Eibel Process Company." It now appears that the company has approached the Scandinavian paper mills with a view to granting licenses for the use of Eibel process, but most of the Scandinavian paper mills ignored its offers, because they consider that the process is not patentable, on account of lack of novelty. The Eibel Process Company have served them with a notice that they intend to oppose the importation of paper which has been prepared by means of a downwardly inclined wire, this opposition being based on a proviso of the British Patent Act by which the importation of goods manufactured by a process for which a British patent has been granted is prohibited without the consent of the owner of the patent. The World's Paper Trade Review reports that Swedish paper-makers sent an expert to London to look into the British patent law and they are now seriously concerned.

Strong opposition is developing against the claims of this company, and it may be that Canadian mills will have a hand in it. We have a letter from a German firm in good standing claiming that the

inclined wire has not only been used in European countries, but it is believed that the principle was applied in the United States before the date of the Eibel patent. The trade will be interested in knowing whether these claims can be substantiated.



WOOD-PULP AS A CLOTHING MATERIAL

A paper read by Mr. James Hope of Rouen, France, at the recent Cotton Manufacturers' Convention in Boston, is of more than passing interest. Neckwear and other apparel made from spruce wood-pulp have been known for some time, and in Europe fairly large quantities have been manufactured. But until we saw the samples of "La Soyeuse" produced by Mr. Hope's process we were not prepared to believe that there was any probable great future ahead of such materials. Through the kindness of Messrs. Danker & Marston, of Boston, who act as Mr. Hope's representatives on this continent for the new fibre, the Pulp & Paper Magazine has been supplied with some of the fibre, and also with clippings of some of the kinds of cloth made therefrom. All are of a pleasing silky lustre and surprisingly strong in texture. Spruce wood-pulp also is a warm material, which should render textiles made from it available for use not only for cotton and linen, but of wool, and the cost of producing is said to be much lower than any of these. Experiments in France, in fact, would seem to have proved that La Soyeuse is suitable in every way as a cheap substitute for wool. A factory is being built in that country for its manufacture on an extensive scale. The fibre has created great interest

among the textile trades in the United States, to such an extent, indeed, that some of the largest firms are looking into the matter with a view to taking over the rights for that country. Arrangements already have been made for its extensive production in England and on this continent.

La Soyeuse takes on dyes, bleaching and finishing more brilliantly than does cotton fibre and its cost of manufacture is said to be materially lower. The fibre can be made of any length as in the case of artificial silk, which, however, it does not resemble in other characteristics, being highly resistant to water or caustic potash solution.

We may state that we will be very glad to show the samples at our office to any person interested.



FINNISH PULP PROBLEM

It is of interest to note that there is a tariff question between the United States and Finland. Until recently there was an export duty on pulpwood as on other small timber shipped out of Finland. This was imposed simply on the ground of domestic policy to prevent the overfree destruction of the forests by peasant proprietors and to conserve the country's wood resources. Six months ago the duty was suspended, but quite recently the rate was reimposed, though it was against the protests of the trade, the fact being that it was impossible to obtain the consent of the Finnish Diet and Senate to any other tax in its place. This caused the Washington Treasury Department to bring into force the clause under paragraph 406 of the new tariff law which enacts that the amount of such export tax be added to the duty on pulp and paper as well as an

additional duty of 25 per cent. on such goods coming into the United States, thus placing Finland on the same basis as our provinces which restrict export of pulpwood. Naturally, there is a great deal of protest in Finland against such action.

But the remedy appears to be in her own hands. It happens that Finland is one of the largest buyers in Europe of American flour, and this, in distinction to that of most other countries, enters free of duty. It is quite possible, therefore, that the Finnish Government may retaliate on the United States for any discrimination against pulpwood or products of the same, by imposing a stiff duty against the American millers.



SUGAR CANE AS PAPER STOCK.

G. W. McMullen, formerly of Picton, Ont., and now of Chicago, has invented a process for making paper from bagasse, or dry sugar-cane refuse. A company organized in the United States is constructing a large plant at Preston, on Nipe Bay in Cuba, to make a practical test of the new process. The fibre is separated from the pulp by machinery, and then by evaporation the water is eliminated, leaving the dry fibre and pulp containing the solids and sucrose from which sugar is made. The fibre and pulp are then baled separately for shipment to the United States, where the sugar is extracted by diffusion. By this treatment the fibre is uninjured and can be used in making high grade paper at a considerable saving as compared with the cost of wood pulp. The residue from the pulp is also suitable for low-grade paper. It is claimed that the preliminary tests, on a small scale, have proved successful, and that in addition to preserving the bagasse for paper manufacture a larger percentage of sucrose is obtained than is possible by the present methods of extraction in sugar houses.

PROHIBITION OF PULPWOOD EXPORT FROM QUEBEC CROWN LANDS.

The following interesting extract on the subject of the Quebec Government's new regulations as to pulpwood export from Crown Lands is from a Quebec correspondent:—

"This regulation of our Local Government has been welcomed with great enthusiasm by the majority of those interested in this matter outside the Province, but I question whether the same enthusiasm prevails amongst those interested within the Province.

"The question presents a great many difficulties which are not very well appreciated by those ignorant of the conditions existing here.

"The principle of keeping our raw material to be manufactured into finished articles in the Province is certainly most patriotic and praiseworthy, and I for one heartily approve of it, and should the Dominion Government pass a law which would affect all wood cut in the Dominion there would be very little criticism from those holding lands under license, though there might be from those possessing forest lands in fee simple, particularly in this Province, where an enormous area has been stolen from the legitimate limit holder under the guise of colonization and the wood from which is destined to go to the States.

"Probably it would surprise you to know that from a very conservative estimate there are over two million acres in forest lands on the Seigniories in Quebec, and about three million acres of patented and located lands, none of which will be subject to the prohibition.

"This would approximately give fifty million cords of pulpwood free to go to the United States, which means that we can supply the United States market (taking as an average the greatest quantity already shipped in one year to the United States, namely, one million cords), for fifty years to come.

"I have not in this estimate given lands granted for railway subsidies as the position of these lands is not quite clear.

"During the last session of the Local House the Government was asked what area of lands had been granted as railway subsidies, and the reply was—none. A short time after a bill was passed, which had for effect to prohibit the exportation of pulpwood, etc., from lands granted for railway subsidies.

"A large quantity of these lands have already been earned and the contracts signed, but the actual patents granting these lands have not been issued. This has created a good deal of uneasiness in the minds of those who have bought these lands from the railway companies which had earned them, and they question whether this law will affect these lands, as they state that they were earned and contracted for before the passing of this law, and have been given as collateral to banks and financial industries; consequently this Act if it applies to these lands would be retroactive and also would be affecting what in reality is private property and therefore for this Province unconstitutional.

"The Government have also passed a regulation by which the wood cut from lands located for settlement in the future will be subject to the prohibition export clause. This is certainly a very good move, and is evidence of the Government's good faith to protect pulpwood from being exported, as far as lies in their power, but I seriously question the practicability of this last regulation. However, the principle is embodied in it and it is only by our experiences in the future that we can judge if it will be effective or not."



The Laurentide Paper Company has declared the regular dividend of 7 per cent. on both common and preferred stock. It had been expected by some that the rate on common would have been increased this quarter.

HOW I MADE SULPHITE PULP WITH 8 PER CENT. SULPHUR

By C. E. Bandelin.

The percentage of sulphur used for reducing wood to pulp according to the sulphite method is very varying in different mills, and a high percentage can usually be ascribed to one or several of the following causes:—

1. Impurities in the sulphur.
2. Too high oxidation in the burners, (to SO_3).
3. Sublimation in the burners.
4. Leaking burners, coolers, acid apparatus, especially where the acid plant works under pressure), storage and reclaiming tanks, digesters, pipes and valves, etc.
5. Unsuitable chemical composition of the acid.
6. The manner in which the digesting process is conducted.
7. The method of reclaiming used.
8. The kind of wood used.
9. The state of dryness of the wood and its previous treatment, if it has been floated or not, and how long it has been left to dry, etc.

The kinds of sulphur mostly used are:

1. Louisiana sulphur.
2. Reclaimed sulphur from by-products in different chemical industries, as for instance from the Le Blanc Soda Process, etc.
3. Sicilian sulphur.
4. Japanese sulphur.

Of these, the first and second are usually purest depending upon the manner of manufacturing, the Louisiana sulphur being dissolved with superheated water from the strata, in which it occurs, often deep below the ground, and the reclaimed quality being submitted to several processes, which make it practically pure. As high a percentage as 99.80 per cent. on the dry basis can occur with these brands, though, of course, there are cheaper grades.

The Sicilian and Japanese sulphur are

offered for sale in various grades. The author remembers once having tested a Japanese sulphur, which was called prima, but which contained only 93 per cent. sulphur on a dry basis.

It is not only the direct loss in money resulting, when for instance only 93 per cent. is obtained instead of, say, 98 per cent., which ought to be the minimum for a good sulphur, which counts, but the chemical composition of the balance is also of importance. In the best case, when the balance consists only of different minerals, clay, etc., it only increases the amount of ashes, which consequently will have to be removed oftener, causing a loss not only on account of the sulphur always adhering to them, but also through over-oxidation as the burner doors must often be opened for the purpose of taking out the ashes.

There can also be selenium present, which has a catalytic influence on the hot (SO_2) gases, oxidizing them to SO_3 . This has only lately been observed and may be of greater importance than anticipated. Presence of selenium is also said to give the pulp a reddish tinge.

Sometimes sulphur contains organic matters, pieces of wood, etc., which when burning can cause soot to come into the acids. With the burner described in the following, this, however, has been eliminated.

The extremes in the consumption of sulphur for sulphite pulp, which have come to the author's knowledge, are 8 per cent. and 23 per cent.; the first being the result from a Swedish mill, built by him* and using English sulphur, test-

*Editor's note.—We have seen a testimonial from the Finsta Sulphite Mill, Finsta, Sweden, showing that the author has built the mill, and that very good pulp was obtained with a consumption of sulphur of 8 per cent. and even less.

ing about 99 per cent., and the second from a mill in the Western States using Japanese sulphur, testing about 93 per cent.

The author's acid system, as used in the mill in question, used rock of lime in low towers, about 40 ft. high. A slight vacuum, corresponding to about 2 inches of water, was obtained by connecting the last tower with the smoke-stack. In the following will next be described the different apparatus used, burners, coolers, absorption-apparatus, etc.

The accompanying illustrations, 1 and 2, show the author's sulphur burner, of

No sublimation or sulphuric acid.

Rich gas.

No motive power required.

Very easy manipulation.

The burner consists of a sloping, tapering box, about 9 feet long, made of cast iron with a mixture for some parts of a certain percentage of another metal, making it much more resistant against the action of the molten and burning sulphur.

A, the bottom part of the burner, is cast in one piece, and very strong and solid. The top is made in two pieces, B and G having flanges with tongues fitting in a groove in the flange of the

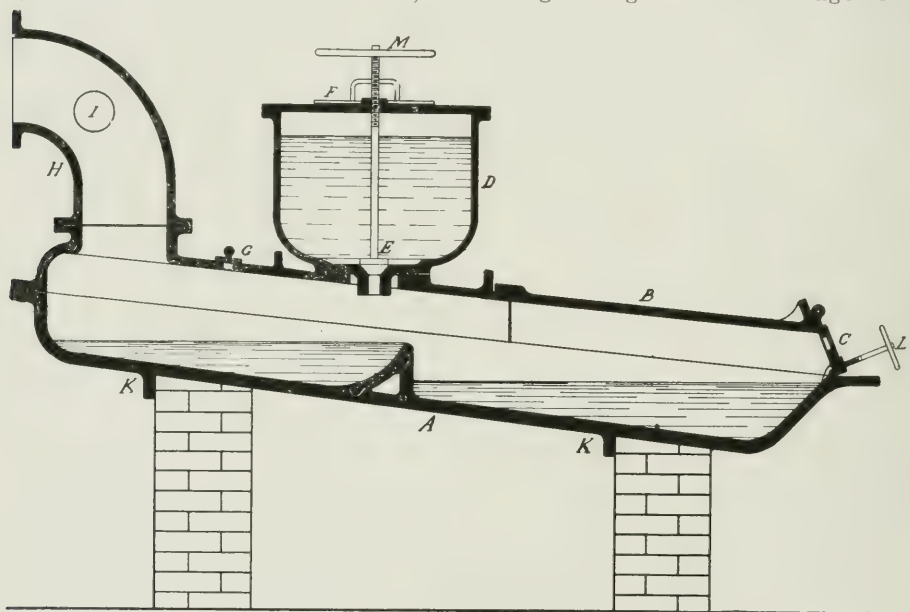


Fig. 1.

which some 35 are in use in northern Europe, and several ordered or in use in America.† The main advantages claimed for this burner are:—

†These burners of the latest type are made in Canada exclusively by the Watrous Engine Works, Brantford, and in the United States by Grand Rapids Foundry Company, Grand Rapids, Wis., which concerns will give all information desired.

bottom part. The joint between the two top parts is made tight with fire-clay. The top is made in two pieces, because experience has shown that the flat part next to the inlet for the air is the one most liable to crack, and if this should happen, it will now only be necessary to get a relatively cheap piece. The groove and the space between the flanges are filled with fire-clay, and the three pieces are then screwed tightly together by means of seven bolts.

The sulphur is fed in through the door F into the melting pot D, where it melts through the heat from the burner. The conical valve E, operated by means of the hand-wheel M, is left only so much open, that just the same quantity of sulphur drips down as leaves the burner through combustion.

The molten sulphur in the burner will first collect in the upper part, until it reaches the top of the inside brace or partition wall. It then flows over and will stand about as shown in Fig. 1, when the burner is working under normal conditions. The stand of the sulphur can be observed without opening the doors through two small grooves, (not shown in the Fig.) cut out from the bottom just below the doors.

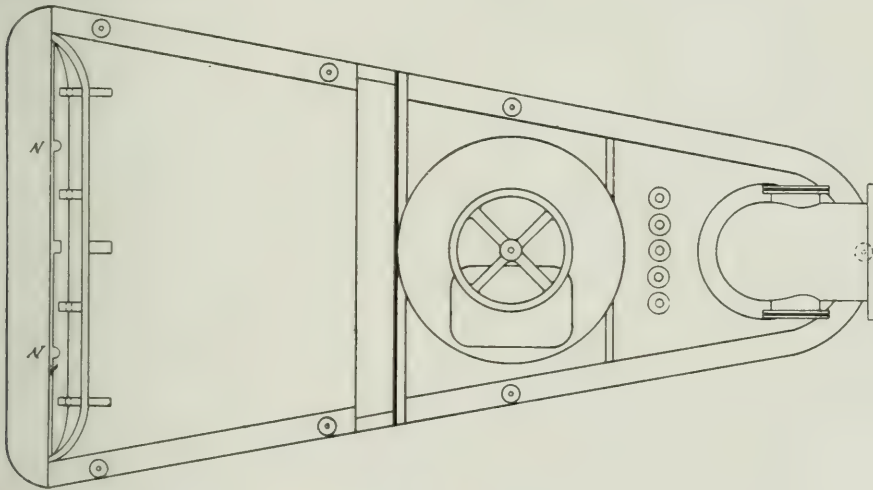


Fig. 2.

In the front end are two doors C, each with a hand wheel and a screw L, by means of which the quantity of air admitted can be exactly regulated. In the doors are also two openings or windows with a thin sheet of mica, in order to enable the man in charge to observe the inside without opening the doors. The doors should, in fact, only be opened to shovel in some sulphur, when fire is first started up, and also for cleaning out ashes, etc., which, however, with good sulphur hardly need to be done once a week.

The SO_2 gas formed leaves the burner through the pipe H, on which are located two windows I with a thin sheet of mica. The condition of the combustion gases is observed through the two windows, (best by holding a sheet of white paper behind and looking through). A tinge of yellowish, or even some cloudiness may indicate sublimation, and in this case the small loose covers at G are somewhat opened, thus giving access of air in the back end of the burner, which will at once oxidize any trace of subliming sulphur. This will, however, very seldom be required, and almost only in summer time.

The melting pot D rests in a groove on top of the burner, and usually the heat from the burner, conducted through

the metallic parts, will be sufficient to melt the sulphur. In winter, or where the burners are placed in a very cool place, it may be advisable to surround the pot with a loose jacket of thin sheet metal or asbestos-board in order to better keep the heat, and in summer it has sometimes been found a good scheme to put some asbestos-board or fire-clay between the pot and the top of the burner. This should always be done, when the sulphur becomes too hot. It may, perhaps, not be generally known, that sulphur vapors, (not SO_2 gas), mixed

with air are explosive, and, if for no other reason, an unnecessary heating of the sulphur should be avoided. No explosion has, however, happened with these burners, and the molten sulphur must be nearly boiling hot, before such gases are given off.

By feeding the burners in this way with molten sulphur, no H_2O from moisture in the raw sulphur can come into the burner, as it all evaporates from the pot, thus eliminating the most important cause of the formation of sulphuric acid.

The burner rests on two piers of brickwork or concrete, and they should be built up so high, that the openings I will be about 5 ft. 6 in. above the floor, which makes it convenient to observe the gases. K.K. are two flanges to keep the burner steady on the foundations.

A gas with 14-16 vol. per cent. of SO_2 , and even more, is easily obtained with this burner under normal conditions. The author is well aware that a higher percentage is claimed for rotary burners, but he is of the opinion that, what there may be gained on account of a higher percentage, is more than counterbalanced by loss of sulphur through sublimation and oxidation to SO_3 , unavoidable on account of the high temperature always existing in such burners.

One burner will burn 1-1½ tons of sulphur per 24 hours, and even more as an average. It is difficult to give a definite figure, as even a very small variation in draught and the quality of the sulphur has considerable influence on the capacity of the burners.

Immediately after the burner comes the gas cooler, Fig. 3, of which there is one for each burner. It may, however, be advantageous, where local conditions permit, to have some kind of air-cooling device, for instance, a long cast-iron pipe between burner and cooler, but this is not necessary. The construction is very simple, and any experienced lead-burner can make this cooler with the exception of some quick openers and special

flanges, which may be obtained from the before-mentioned concerns, who also will furnish a complete working drawing of this cooler free to all buyers of the burner. It only requires a floor space of about 7 ft. x 2 ft., and is about 7 ft. high. This cooler was originally constructed by the author for a mill, where cooling water was very scarce in summer, and where the floor space was very restricted. It worked so well, however, that he found it advantageous to use also in other mills. It consumes only a minimum of water; the gases leaving the cooler hold nearly the same temperature as the cooling water, and the water used was nearly boiling hot.

In the usual coolers for SO_2 the gas passes forwards and backwards several times through lead pipes surrounded by water in a big wooden box. The cold water coming in is soon mixed with warm water and a nearly uniform temperature exists in the whole box. To get tolerably good results a great quantity of water must be used, not to speak of the floor space occupied. The main principles for all gas-cooling are often overlooked, viz., the gas should travel in opposite direction to the cooling water, and several times suddenly change direction, especially in big pipes, as otherwise the gas next to the metal will be cooled, while it is still hot in the interior. In the cooler now described, the gas changes direction suddenly at 8 different points on the same floor space mentioned.

The cooler consists of 4 upright tubes, B, C, D, E, and 3 horizontal connecting tubes, F, G, H, made of hard sheet-lead, about ⅜-in. thick, with the same inside diameter as the neck of the burner, or 10½-in. The horizontal tubes are cut off and connected with flanges and bolts, so that the cooler consists of 4 main parts.

The hot gas from the burner enters at A, goes down through B, changes direction through F, changes direction again and up through C, and further in the same way through G, D, H, and E, to the

outlet I to the acid apparatus. On the top of the three first tubes are openings, provided with loose, watersealed covers, K, K, K, shown in section on the first tube, in order to give easy access to the interior without interrupting the work. The inside of the tubes should be in-

openings Q, which have quick openers, described in the following.

The last tube E, has an interior sealing cover L, fitting in a kind of pocket filled with fine sand. It may happen, for instance, that when two burners work together for one acid apparatus, so much

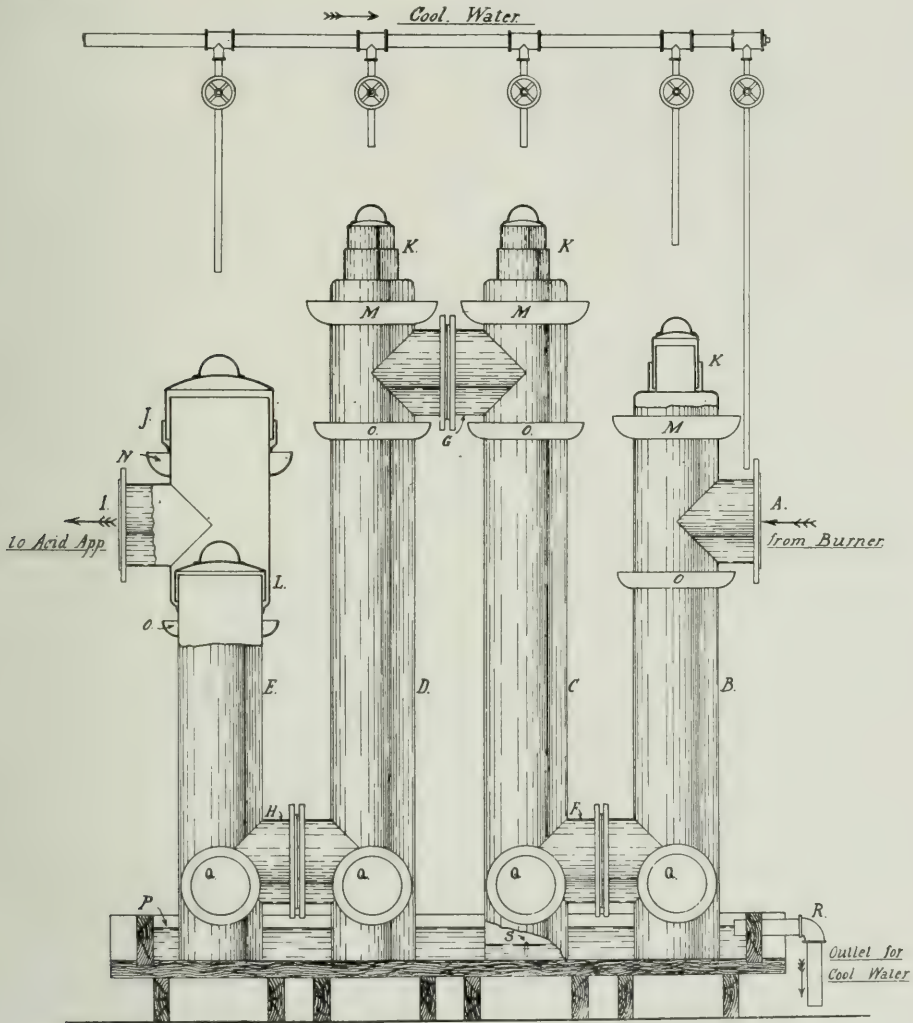


Fig. 3.—Cooler.

spected from time to time through these openings, and if any sublimed sulphur has collected on the walls, which only can happen if the burners have not been watched carefully enough, it should be brushed down to the bottom, from where it easily can be removed through the

acid is at hand, that it is desirable to reduce the production for some time, say during a night, without shutting down the whole system. In this case it is easier to work with only one burner under normal conditions, than to reduce the combustion in both. The top cover J on

the last tube is made so much larger than the other, that the interior shut-off cover L can be taken out.

The cooling water arrives through 5, say $\frac{3}{4}$ -in., pipes on the tops of all the top covers and also on the first horizontal tube, which is exposed to the strongest heat. It fills up the water seals and is collected in the distributing collars M, M, M, and N. These are made of thin sheet-lead, bent in the manner shown in the figure, and soldered on to the tubes, say every 2-in., leaving a narrow slot of say $\frac{1}{24}$ -in. between the tubes and the collar. This serves to distribute the water evenly over the whole surface of the tubes. Other distributing collars, O, are provided below the gas entrance at A, the horizontal pipe G, and the outlet I, in order to collect and again evenly distribute the water.

Close to the bottom of every tube is a small $\frac{1}{2}$ -in. pipe, shown at S, soldered on in order to let out any sulphuric acid or water condensed. This pipe is bent outside of the tube in form of an S in order to form a water seal.

The 4 tubes are supported by a wooden scaffolding, (not shown in the Fig.) to keep them from collapsing. Strips of sheet lead are soldered on the tubes at the top and half way up and nailed to this scaffolding.

The used cooling water, which can have a temperature of up to 90° C. is collected in the wooden box P, and may be used to advantage to wash the pulp, especially after bleaching, as it may contain a trace of SO₂, which is a perfect "anti-chlorine." R. is the outlet for the cooling water.

(To be Continued).

—

SOME NOTES ON REASONABLE MILL ECONOMIES.

Second Paper.

In our first paper we took up the subject of saving waste material, especially waste pulp and sulphite stock, and described the perfected process by which the Pneumatic Save-All reclaims 90 per cent. of such waste.

The saving of waste stock has proved to be an item of great importance in pulp and paper making, just as in every modern industry the saving of waste has now become of first importance. The efficient saving of the waste itself adds greatly to the profit of the mill, and this item alone yields in some individual mills a yearly total that is far into the tens of thousands of dollars.

But this direct saving of the waste is only one element of the matter. There is an indirect saving that is equally important. This is the saving that arises from knowing exactly when and where that waste occurred and who caused it. In this respect also, as in the first, the Pneumatic Save-All is absolutely unique, for it acts as an accurate detector of any loss, wherever it occurs. All the stock that flows into the Pneumatic Save-All, in the waste or "white" water, immediately emerges on the pneumatic cylinder mold of the machine in the form of a thick, continuous mass of uniform density, when the loss is heavy, and is collected in a suitable vat or conduit.

The appearance presented by the normal outflow of this waste after it is once determined is quickly recognized at sight, and any excess of loss is therefore detected by the eye, and the leak which caused it and which would have otherwise gone on unsuspected, is easily traced back to its source.

The Montrose Paper Mills. Thorold, are installing a machine for making writing paper with a linenette finish, the first of its kind in this country. They are also erecting a large finishing and storage room, two storeys high.

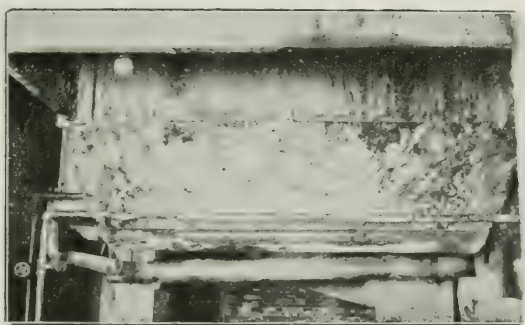
Some superintendents attach so much importance to this quick detection of extra loss that they connect up the Pneumatic Save-All in such a way that the amount of loss from any machine and under any single shift of men can be

separately caught, weighed up and recorded. The result is that in this way a check is placed upon the operation of the mill that could not be obtained in any other manner; and the carefulness of the best workmen is quickly noted (much to their advantage and that of the mill). In some cases so much importance is placed upon this system that the Save-All is located under lock and key; and its results are known only to the foreman or superintendent.

The mass of thick pulp delivered from the machine is an indication of the condition of the mill, and affords a continual means of checking up the performance of machinery and workmen.

As to labor, no manufacturer wants or intends to "save" labor, so long as that labor is profitably employed. The thing that shuts up a mill and lays off its workmen is usually the unprofitable employment of labor. Hence that is the thing that is directly against the interests of both employer and employee; the thing both should unite in overcoming.

Here is an interesting illustration of the foregoing:—For many years pulp mills have been using the ordinary types of so-called wet machines to produce "laps" or "noodles" of thickened pulp. It has been assumed that if the wet machine received the thin pulp and extracted its water down to from 35 to 40 per



The Pneumatic Save-All in Operation.

This system is simply the carrying out, in pulp mill practice, of the same careful conservation of values that all other industries have long insisted on in their fields. The successful mill, like the successful factory, is the one that succeeds in saving and utilizing its waste. The pulp and paper interests are learning this lesson and are profiting by it as all other classes of manufacturers profit in which similar measures are taken.

But the saving of waste stock is only the beginning of modern economy. The saving of space, power, and all unnecessary time is equally important, and equally easy to accomplish when the correct method is found.

cent. air-dry, it was doing about all that could be expected of it. The remaining surplus water was either shipped with the pulp or extracted by some form of hydraulic re-press, and either method entails a considerable and unnecessary expense.

It has been estimated that the extraction of the surplus down to, say, 50 per cent. dryness, would injure both the pulp and the blankets, even if the machine existed capable of producing that degree of dryness. A type of wet machine, however, now does exist in which 50 per cent. dryness is directly produced through a special and patented combination of main rolls hydraulically forced against

the pulp and a series of auxiliary rolls utilizing both cotton and woolen felts in a peculiar combination. This result is obtained not only without injury to either felts or pulp, but with a decidedly improved quality of laps.

Some interesting tests were recently made with two of these machines under working conditions in a mill where they have been in service for some months.

These two machines are operated by a crew of three men, one man in charge with two assistants; and working continuously, in shifts, they are turning out 40 tons (air-dry weight) per 24 hours.

Forty tons, the daily production of these two machines at 50 per cent. air-dry, represents a gross output of 80 tons. They take the place of the earlier type of machine, of which four were required to produce an equal amount. Not only did these earlier machines require far more labor, but their output was only 40 per cent. dry at best, hence they were actually delivering 20 tons of dead weight per day more than the new machines, although the net weight was no greater and the production was not so good a grade.

That twenty tons of extra weight was simply so much water that the defective wet-machine process had not eliminated. Its subsequent handling and re-handling constituted a heavy tax not only on the men but on the monetary resources of the mill.

To continue shipping that amount of stock per day in a condition of 40 per cent. dryness, when it could just as well be made, (as it is now being made), 50 per cent. dry, represented a wasted freight expense of a great many thousand dollars per annum. Just how much, cannot be stated, but the amount can be understood when it is realized that this surplus water, which is now being eliminated, amounted to 6,000 tons per year, and at the lowest freight rate quoted for the shortest haul it would have amounted to twelve thousand dollars;

and that is considerably more than the wages that were paid per annum in 'his work.

This example illustrates some of the reasonable economies which a mill can get for itself by a careful study of machines and machine-economies. There is no reason why such economies should not be reached far more generally. There are many such items, which although once ignored as being an unnecessary refinement, are now decidedly necessary to the successful mill in order that the increasing costs of the industry may be applied in the most efficient manner possible. In no other way can the real welfare of that industry be truly assured.

The Save-Alls and wet machines here referred to are made by the Sherbrooke Machinery Company, Limited, of Sherbrooke, Que.



RECENT CANADIAN PATENTS.

The following is a list of Canadian patents, relating to pulp industries, and furnished by Fetherstonhaugh & Company, 5 Elgin Street, Ottawa, Canada, Russel S. Smart, resident, from whom all information regarding same may be obtained.

125957—A. L. Smith, New York, N.Y., cartoons. A. L. Smith, Thos. F. MacMahon, and E. H. Block.

125959—Otto Tobiesen, Christiania, Norway. Paper making machinery, L. C. Haseall.

125989—Wm. E. Brown and R. J. Scoville, Glen Falls, N.Y. Paper machines.

126043—C. A. Johnson, Stockholm, Sweden. Rotating straining cylinders for wood pulp and the like.

125066—P. Priem, Heidenheim, Ger. wood grinders.

126060—H. S. Rinker, Woodhaven, N.Y. Paper making systems.

VALHALLA-HIXON CHLORINATOR.

The Valhalla-Hixon Chlorinator is a thoroughly practical and scientific bleaching apparatus, whereby laundrymen, also paper makers, can do away with all the troubles of the old-time chloride of lime bleach, and whiten their output without worry over claims for damages.

The chlorinator is operated by the decomposing or electrolytic action of a 110 or 220 volt direct current on a solution of common salt, while flowing through our especially designed electrolytic vat. This action produces a uniform and most efficient bleaching liquor called Chloritone at a nominal cost.

Chloritone after proper dilution is absolutely harmless to the finest fabrics. The breaking point in strips of new linen, tested under heavy strain, and tested again after many washings, showed no weakening of the fibre when Chloritone was used.

Clothes won't "go yellow" if you use Chloritone; no streaking; no spotting; no ugly holes, as is the case when you use "chemik." Any of your employees can operate the chlorinator and produce the bleaching equivalent of from 15 to 100 lbs. per day of "chemik," or bleaching powder, at less than half the cost thereof.

It is easy to understand why the chlorinator does what we claim for it, and why bleaching powders and "chemik" should no longer be used, if you want to hold your trade.

Bleaching powder loses bleaching strength, but gains rotting strength from the moment the cask is opened, whereas the chlorinator produces an absolutely dependable, never-varying bleaching liquor, at less than half the cost of lime or other powders.

Every practical laundryman who uses the old-fashioned "chemik" bleaching powder knows that his customers are just seething with anger and discontent. All that holds them is their reasoning that

"all laundries are alike;" "all of them rot holes in the clothes," and that it's no use shifting from "evils that they know, to evils that they know not of." So they just stay where they are. But the moment it becomes known that YOUR laundry is one of those which don't injure the clothes by harsh and careless bleaching, your trade will grow so fast that your only problem will be to take care of it, and that's why you should equip your plant at once with the chlorinator. Prices range from \$150 to \$300. Just tell us whether you have 110 or 220 volts, and if direct or alternating current, also your weekly volume of business, and we will quote price of chlorinator of proper size to do your work to best advantage, and give you thirty days' working trial of same.

The Valhalla-Hixon Chlorinator is manufactured under Letters Patent granted July 13th, 1909. Other patents pending.

No other bleach machine does the work so perfectly or at so low an operating cost, as our chlorinator is the only type where ONE VAT suffices for either 110 or 220 volts.

If you are in the laundry business to get out of it all there is in it for you, and give perfect satisfaction to your customers, you should act at once and install the Valhalla-Hixon Chlorinator System.

Further particulars may be obtained from the Valhalla Company, 1313 Carmen Avenue, Chicago, U.S.A.



The premises of the Pullan Paper Co., in Winnipeg were burned out on the 7th inst. at an estimated loss of \$20,000. This is the second fire loss sustained by the company within six months, and the third since establishing a house in Winnipeg. The business consists in collecting old paper, which is baled and shipped to the factory at Toronto. The building is a total wreck, and all the machinery and big stock of baled paper were destroyed.

PULP AND PAPER NEWS

The Pacific Coast Sulphite Pulp Company has closed down its plant.

* * *

W. J. Finlay has installed a new gas producer plant at his mill in Strathcona, Alta.

* * *

W. Copping's pulp mill at Joliette, Que., has been burned down with a loss estimated at \$70,000.

* * *

Mr. Wilkinson has been appointed Ontario representative of the New Brunswick Pulp & Paper Company, Millerton, N.B., with offices in Toronto.

* * *

C. W. Thomson, who was formerly connected with the Don Paper Mills, Toronto, has entered on business as jobber in krafts and wrapping.

* * *

In spite of the lowness of water in the branch streams of the River Ottawa, the Booth & Eddy mills report good prospects for continuing to run their mills.

* * *

The mill of the Miramichi Pulp & Paper Company, Chatham, is still closed down. The wages of the men, it is said by a local paper, are still in arrear.

* * *

The National Bag & Paper Company, Limited, has been authorized by Parliament to change its name to the Continental Bag & Paper Company, Limited.

* * *

Serious fires have been raging during the early part of the month around Fort William. At Lavallee and some other places, sawmills and camps were destroyed.

* * *

The Campbellford Pulp & Paper Company's mill at Campbellford, Ontario, is completed and will be turning out pulp within a few days. Four grinders will be in operation with a capacity of 25 tons per day. The superintendent will be D. F. Robertson. They expect to make use of their product in their own mill.

Maurice Guinn, who owns extensive timber limits within Alberni district of British Columbia, is said to contemplate forming a company to build a saw and pulp mill.

* * *

Engineers are surveying the water powers belonging to the Labrador Lumber & Pulp Company on Hamilton Inlet, Newfoundland, with a view to selecting sites for pulp mills.

* * *

The Dominion of Canada Trust Company held a meeting in London, England, recently, at which it was stated they would acquire large pulpwood interests in Nova Scotia.

* * *

The Empire Paper Box Company has been organized in Montreal, with a capital of \$40,000. E. A. Barnard, A. H. Sims and J. R. Gordon, all of Montreal, are provisional directors.

* * *

It is said that American capitalists who are already interested in the New Brunswick pulp industry are negotiating for the purchase of the mills and timber areas of the Scott Lumber Company, St. John, N.B.

* * *

E. F. Ashe, superintendent of the Don Valley Paper Mills, Toronto, has resigned to go into other business. He is succeeded by J. I. O'Connor, recently with the International Paper Mills at Watertown, N.Y.

* * *

The Hinde Dauche Paper Company finds its corrugated paper box business increasing so rapidly that it is necessary to extend its factory. It has purchased two additional buildings and will install several new machines.

* * *

F. M. Scarrt, manager of the Merchants Bank of Canada, in Georgetown, Ontario, informs us he is not connected with the recently organized Georgetown Coated Paper Mills, Limited.

The Elliott Manufacturing Company have been granted by Toronto city council, the lease of one acre of land in Ashbridge's Bay, for 21 years, on which they will erect a paper box factory.

* * *

Geo. A. Howell, of the Howell Company, Toronto, agents for ground wood, sulphite, pulpwood, paper stock, etc., has returned from an extensive business tour. He was in England, Scotland, also in Massachusetts and the Middle Western States.

* * *

The B. F. Nelson Manufacturing Co., of Minneapolis, who, as recently announced, are about to open a factory for making roofing paper, in Winnipeg, with F. P. Barker of Kansas City, Mo., in charge, will carry complete stocks at various points in Western Canada.

* * *

The capacity of the Canada Coating Mills, Georgetown, will, it is expected, be increased by 50 per cent. with the proposed extensions, excavation for which has already been begun. The new building will be of cement, 36 by 260 feet. Two new 64-in. machines will be installed.

* * *

The deal referred to in last issue affecting the taking over by the Brompton Pulp & Paper Company, of the timber limits and sawmills of the Champoux Co. has now been practically completed, the sum of \$200,000 having been paid down. The area of timber is said to be 18,000 acres.

* * *

The United Paper Mills, Limited, have moved into commodious new premises at 122 Wellington St. West, Toronto, under the charge of E. R. Young. J. P. Piper who formerly acted as Toronto representative of the New Brunswick Paper Company is now salesman for the United.

* * *

The Beaver Company, Buffalo, which has a factory employing some 3,000 hands at Beaver Falls, N.Y., in the manufac-

ture of beaver board, which is made from pulpwood and used as a substitute for lath plaster and wall paper, is about to erect a factory in Ottawa to employ 150 hands at the start.

* * *

The Swanson Bay Forests, Wood Pulp & Lumber Mills, Limited, has been incorporated with a capital of \$1,500,000, to take the place of the Canadian Pacific Sulphite Pulp Company. Lumbering operations will be carried on on an extensive scale, but there is no immediate intention of going into the manufacture of paper.

* * *

Senator Edwards, Ottawa; Angus McLean, of Buffalo, and H. G. Turner, engineer, of New York, are interested in a project to erect a dam on the Grand Cascapedia River, Quebec, in order to construct a pulp and paper mill, which will cost \$2,000,000. The demand is opposed by rich American fishermen who contend that the erection of a dam will put an end to salmon fishing.

* * *

The affairs of the British Canadian Wood Pulp & Paper Company, Port Mellon, B.C., another of the Greely-Koltz flotations, are said to be in a somewhat unsatisfactory condition. The shareholders are now asked to subscribe for 4,000 mortgage debentures of \$100 each (offered at \$75) bearing interest at 7 per cent. It is stated that the company will have to raise at least \$300,000 to meet claims.

* * *

At the annual meeting of the shareholders of the Watson, Foster Company, Limited, wall paper manufacturers, Montreal, the following were elected directors: Hugh Watson, S. S. Boxer, W. A. Sutherland, W. B. Foster, J. H. Gallagher, W. I. Gear, R. H. Gillean. The following officers were appointed: Hugh Watson, president; S. S. Boxer, vice-president and manager; W. A. Sutherland, secretary-treasurer; R. H. Gillean, assistant manager.

Under the New South Wales Pure Food Act just passed there should arise a good demand for parchment and other wrapping papers. Hitherto, Australian tradesmen have used old newspapers and similar material, but under the new Act pulp wrapping paper is made compulsory and only such paper as is sanctioned may be used. It is therefore inevitable that the demand for good wrapping paper will grow within the next few months to large dimensions.

* * *

The La Tuque pulp mills built by Brown Bros. of Berlin, N.H., are now practically completed and in a short time will be turning out 60 tons of sulphite daily. A paper mill will follow shortly. Large quantities of power will still be available after supplying the needs of these mills, so that the town of La Tuque, situate on the G.T.P., a few miles from Quebec, is likely to flourish. It already has banks, sawmills, some fine stores and a population of nearly 2,000. Sulphate pulp for Kraft papers will be a large product of this mill, but this pulp will be shipped to Berlin, N.H.

* * *

A despatch from St. Johns, Newfoundland, says that W. H. Taylor disposed of two timber properties in England, one consisting of about 300 square miles, situated near LaPolle Bay, and the other, 345 miles, at Bay St. George. Both were sold to private parties, who will operate mills for the manufacture of pulp, and engineers are now on their way across to examine the properties, locate sites and do all preliminary work in connection with the opening of the mills.

* * *

The fiftieth anniversary of the official connection with the Methodist Church in Toronto of Richard Brown, president of Brown Brothers, manufacturing stationers, Toronto, was marked by an enjoyable gathering at the home of Hon. George A. Cox. Mr. Brown has been recording steward for a quarter of a century at the Sherbourne Street Methodist

Church, and his jubilee as an official of the church was made the occasion of the presentation of an illuminated address.

* * *

The National Paper Mills, Limited, proposes to erect in the vicinity of Vancouver, a paper mill with a very large capacity. Among those interested are Hon. F. Carter-Cotton, M.P.; James A. Mitchell, John A. Lee, mayor of New Westminster, and L. D. Taylor, mayor of Vancouver. Most of the pulpwood required, it is expected, will be obtained from the Fraser River Lumber Company. Mr. Charles J. Kay, Vancouver, who has had twenty years' experience in the paper making business, is to be manager of the company, and Sylvester Cropper, who has had thirty years' experience will be general superintendent.

* * *

The proposed solution of the Fort Frances power problem by the Ontario Government is claimed by citizens of the town to be no solution at all. The Fort Frances Times puts the case in this way: "The Ontario Government has endeavored to temporize by permitting the company to export 6,000 horse power to United States provided it keeps 1,000 horse power constantly available to meet any future demand on the Canadian side; but as the demand on the Canadian side increases it shall be bound to restore the 6,000 horse power exported. If this were practical it would be all right, but the trouble is that it is not. Suppose certain large industries on the American side are established to utilize this 6,000 horse power, and, in the future, industries are established on the Canadian side which will require this power. It would mean that by the withdrawal of the 6,000 horse power, industries on the American side which have been established to use it would have to shut down or put in steam plants. As the years went by these American industries would have become entirely dependent on this power, and the withdrawal of it would be bound to result in international complications."

MONTREAL PULP AND PAPER MATTERS.

(Special to "Pulp and Paper Magazine.")

Montreal, July 9, 1910.

Crabtree & Sons lately had the smoke stack blown down at their mill, but have had it replaced by a much stronger and more serviceable structure. This mill is running to full capacity, turning out from ten to fifteen tons of news, wrapping and wall papers per day.

The News Pulp & Paper Company, till recently known as the St. Raymond Mill, is getting into shape under the new organization, with Frank Powell as manager. Mr. Powell, who was formerly with the Canada Paper Company, is devoting his whole heart to the work and with good prospects. The mill is supplying Canadian papers with news. The company's office is now in the St. Nicholas Building, Montreal.

The New Brunswick Pulp & Paper Company, manufacturers of kraft papers, reports a steadily increasing trade. Its Montreal office is in the St. Nicholas Building, St. Nicholas Street, and is in charge of F. C. Dickson. E. H. Wilkinson had charge of this office, with Mr. Dickson as assistant, till a month or two ago, when Mr. Wilkinson was transferred to Toronto, where the company have opened an office and warehouse at 124 Richmond Street West.

The Wm. Cauldwell Paper Company of St. James Street have opened an Ontario branch at 70 Church Street, Toronto.

A. C. Campion is manager of the Montreal office of the Belgo-Canadian Pulp & Paper Company, which is located in St. Nicholas Building. Mr. Campion was for nine years with Edw. Lloyd, Limited, and joined the Belgo-Canadian company a year ago. This company has pursued a conservative policy, and has a market for all its output of news, chiefly in the United States. Mr. Campion looks forward to the time when the proportion of United States newspaper publishers who will obtain their supplies direct from Can-

adian mills will increase. This would be a natural evolution, seeing that it is more and more important for the large United States dailies to be assured of a supply of white paper at a price which will enable them to know whether they are carrying out their business policy at a loss or a profit. The recent famine in news brought about by the strike at the International Paper Company, combined with other causes brought this problem of paper supplies home to the publishers all over the States. When up against this crisis the publisher realized that there was not much security in making a long-term contract for news at say 2½c. when it became impossible to get fulfilment of this contract, especially if made through a commission house or broker. It seems likely, therefore, that larger dealings will be made by United States publishers with Canadian paper mills direct, as there will be less likelihood of shortage of supplies, either from strikes or failure of water supply or supplies of wood.

The Sault au Recollet Paper Company are putting in a new 300 h.p. engine, to increase their power and output. The present engine of 180 h.p. will, in future, furnish motive power for the leather board mill, while the new engine will run the roofing paper mill. With improved machinery and the control of raw material specially adapted to the product, the leatherboard now turned out at this mill has gained a high reputation. The proprietors are J. R. Walker & Company, 35 Common Street, Montreal.

F. W. Bird & Son, of Hamilton, Ont., and Walpole, Mass., who recently bought from Bishop & Pepin the mill at Pont Rouge on the Jacques Cartier River, where the C.P.R. crosses, are putting in machinery to make roofing and folding box papers. Mr. Bishop retains the Port Neuf mill, under the name of the Montreal Paper Company, and Emile Pepin

the St. Bazile mill, now called the Eastern Paper Company. Both are making roofing papers.

The Dominion Paper Company of Montreal recently put in a new beater of 1,500 lbs. capacity in their mill at Kingsey Falls, Que. This beater was made by the Emerson Manufacturing Company of Lawrence, Mass. The Dominion Paper Company is now manufacturing kraft brown paper by the sulphate process, being the third mill in Canada to make this special paper. Mr. Wright, manager of the paper department of the company's Montreal warehouse, showed the representative of the Pulp & Paper Magazine a sample of the new product and it compares well with the best grades of imported kraft. The subject of Canadian kraft papers is more fully gone into in another part of this issue. The Dominion Paper Company, which is now turning out about ten tons a day, has recently opened up a Toronto office at 35 King Street West, in charge of H. E. Livingstone.



The Grenville Board and Pulp Co., Thorold, Ont., has been incorporated with a capital of \$75,000 to manufacture wood and chemical pulp, paper, etc. W. W. Grenville, of Thorold, F. R. Austin, of Fonthill, J. J. Manson, of St. Catharines, A. W. Clark and C. F. Clark of Thorold Township, and J. L. Shirtzruger of Pelham Township.



SHERBROOKE MACHINERY COMPANY, LIMITED

Part IV. of the above company's general catalogue gives a technical account of certain photo-microscopic work which they have done in connection with wire screens and fibres. This has a significant bearing upon the use of wire screens on any machine, whether made by the Sherbrooke Co. or not. It indicates why some loss of stock occurs in various ma-

chines, and how it may be in part either checked or recovered. This, we understand, is the first instance where such careful microscopic results have appeared in a published and accessible form. The microphotographs, which are engraved life size and reproduced in the pamphlet now before us, were prepared by expert microscopists associated with the Massachusetts General Hospital, the Massachusetts Institute of Technology, and a prominent professional research laboratory. Hence, the results are not only fine in themselves, but are genuine and authoritative.



POST'S PAPER MILL DIRECTORY

The 1910 edition of the above-named book is now to hand and is as complete as usual. It is a general reference book for all those interested in the pulp and paper and allied industries. The lists of pulp and paper mills are very full. In these departments are given reports from all the mills, including location, shipping facilities, names of owners, and officers, equipment, kinds of paper or pulp made, quantity of product made daily, etc. Classified tonnage lists give information, under the name of each grade of paper, the names of the mills engaged in making same. Further reference to the mill report of the mills in question gives details as to width of sheet, quantity, etc. Other useful departments are "Converters of Paper," "Paper Houses Carrying Stock," "Dealers in Paper," "Paper Stock and Rag Dealers," "Paper Box Makers," Bag Manufacturers," "Manufacturers of Glazed and Coated Papers," also cardboard, waxed paper, vegetable parchment paper, envelope manufacturers, wall paper printers. Much other useful information is given, including trade customs, watermarks and brands, statistics, mill officers, tariff, etc. The book contains nearly 700 pages, is well bound in cloth and will be sent for \$2.00, by L. D. Post, Tribune Building, New York City.

QUEBEC LIMIT HOLDERS' ASSOCIATION

At the annual meeting of the Province of Quebec Limit Holders' Association, the following memoranda were submitted for consideration, and afterwards laid before the Government.

1. That the products of the Quebec forests are only a small percentage of all the forest products with which they compete, so small that they cannot get any increase in price to cover the increase in cost.

2. The profits on forest products from Quebec limits have decreased during the last ten years.

3. The production from the Quebec limits have not increased in the past ten years, and they certainly would have done so if there had been a considerable profit to be made.

4. The forest production from located lands have increased in the last ten years so that they are now equal to the products from limits. This is largely due to the abuse of the Settlement Laws, and the Government get no revenue from them. If they would strictly collect all dues from these lands they would get the increase in revenue which they now desire to get out of the limit holders.

5. This abuse of the Settlement Laws has been a great wrong to the limit holders, as also has been the abuse of the Fire Protection Laws.

6. Small logs, 8 inches and under for spruce, and 11 inches and under for pine and low-grade, small-sized woods (Balsam and Black Spruce), cost more to get out and are worth much less per 1,000 feet than the larger and better grade woods, consequently the stumpage on these should be less than at present.

7. Balsam and Black Spruce seldom grow larger than 10 or 11 inches on the stump. They are mature on an average at 7 inches and tend to deteriorate after that, consequently the stump limit on these should be 7 inches and an incentive (through a low rate of stumpage), should be given to cut Balsam, as forests of this wood are replacing Spruce forests.

8. Stumpage rates on Crown lands should be fixed for a considerable period, owing to the expenses and length of time needed to establish industries and the necessity for extended financial arrangements to be made.

The delegation which waited upon the Government urged that the natural formation of the Gaspé Peninsula and Lower St. Lawrence rendered lumbering more expensive and hazardous than in other parts and that it could not compete owing to shipping facilities, etc.; reductions on the tariff laid down by the order-in-Council, should therefore be made. In regard to pulpwood: The Government having prohibited the export of pulpwood from Crown lands, companies operating these are reduced to two alternatives in regard to the large quantity of Swamp Spruce which is found in this district, viz.: (1) Not to cut at all. (2) To erect pulp and (or) paper mills in order to utilize the wood.

The latter alternative calls for an immense outlay of money over other localities on account of the practical dearth of natural water-powers on the rivers. Not only will it entail a heavy development to create water-powers, but also a super-development which will be extremely costly, to preserve the waters in order to furnish a constant and regular power. Officers of the Association are: President, Alex. MacLaurin; vice-presidents, Geo. Chahoon Jr., and W. K. Trower; secretary-treasurer, Paul G. Owen.



CEMENT FLOORS FOR MILLS

The difficulty of determining what are the facts in any question on which there are contrary opinions, is well shown by the two following replies from New York paper mills, to questions asked by the Aberthaw Construction Company, of Boston, about the effects of granolithic floor surfaces on operatives.

"My experience has been, in the past forty years," says the superintendent of mill No. 1. that a paper mill operative will go home more tired and more played

out by working eight hours on a concrete floor, than he would by working twelve hours on a plank floor."

On the contrary, mill No. 2 says:—

"Nearly all the operatives we have consulted in the matter prefer the cement floor, and we cannot see in what respect it is bad for them."

In the face of such contradictions as these, the man about to build a new mill or factory may well feel all at sea on the choice of floor materials. The Aberthaw Company, however, in a report of its recent investigation on "Wearing Surfaces for Factory Floors," shows that the contradictions in the testimony of those who have used both wood and cement surfaces are more apparent than real. It is made clear in the report that the bad effects of cement floors on operatives are due to standing still in one place, as at a lathe or bench, and that the harm is due not to the "hardness," but to the "coldness" of the cement. Such a floor is a good heat conductor, and when a workman stands still on it for hours, the concrete draws off some of his bodily heat and particularly chills his feet and legs. A study of all the reports to the Aberthaw Company shows that this is the real source of the harm to operatives.



KRAFT PAPER NOTES.

The word "Kraft," which is German for "strong," has now been adopted into the English language as a name for a special kind of paper usually of an olive brown color, but capable of being made in any dark color for specific needs. Kraft papers were first introduced into the paper trade by Swedish mills, and was first known as Swedish Kraft. In their efforts to retain pre-eminence in this special line, and finding the paper in growing demand, the Swedish manufacturers and merchants made a good deal of mystery over the process, and sought to convey the notion that the real article could not be made outside of Sweden. It is a sulphate of soda pro-

cess, and the fiction of secrecy has been exploded for some time. The only mystery is involved in the question of skill. For some time past German and British paper makers have been making Kraft papers as good as any made in Sweden or Norway, and three Canadian mills that have gone into this specialty are turning out a product that compares with British, German, or Scandinavian. "The Pulp & Paper Magazine" has samples at its office of Kraft papers made by the New Brunswick Pulp & Paper Company, of Millerton, N.B., the Brompton Paper Company, of Brompton Falls, Que., and the Dominion Paper Company, of Kingsey Falls, Que., the three mills referred to, and proof of the quality of the Canadian Kraft papers can be furnished to any one who has doubt on this point; and who will bring a sample of a Swedish Kraft for comparison.

A caution should be given on this point to the buyer of paper. There is no good thing introduced in commerce that does not bring out counterfeits, and there are already bogus Krafts on the market. The Toronto office of one paper company whose reputation otherwise stands high, has been selling a very rotten class of common wrapping made from ground wood as Kraft brown. It is hoped that the head office will put a stop to a practice which will sooner or later prove more damaging to their own good name than to the makers of real Kraft papers.

Kraft paper came into immediate demand, because it gave the maximum of strength and toughness with the minimum of weight and bulk. When ground wood pulp began to figure so largely in the paper industry, makers of wrappings gradually got the idea that if they could give weight and thickness to wrappings for heavy goods they could satisfy the consumer; but this was like Col. Sellers in Mark Twain's story of the Gilded Age. When the Colonel ran short of fuel he put a candle in the stove, and when the deception was discovered, tried to persuade his guest that it was not heat

but only the appearance of heat that was needed in a stove. When Kraft wrappings came in and were shown to the hardware merchant, for example, that tradesman did not hesitate to welcome it, and it was not long before it taught the paper manufacturer that it was something more than the appearance of strength that was required in a paper for wrapping tools, nails, and screws. So in other lines of merchandise, and it soon became evident that while Kraft paper cost more by the pound, its greater strength and lightness made it distinctly the cheapest paper.

The manufacturer of common wrapping paper is perhaps not entirely to blame for the condition of things which paved the way for Kraft brown. The eternal cry for something cheaper that will serve the purpose was responsible. The danger, therefore, to the makers of real Kraft papers is that they will be scared by the competition of makers of bogus Kraft papers into cheapening their goods. Their best policy is to fight it out on straight lines, and trust to more or less discriminating buyers to find out the real from the spurious. The use of trade-marks, water-marks, and other means of identifying their goods will be a help in this direction, and the battle can be won against imitators.

The writer looks forward to the time when Canadian mills will be doing a good export trade in these papers.

The New Brunswick Pulp and Paper Company have not only been very successful in natural colored Krafts, but in making up special colors such as blacks, grays and greens to suit the needs of consumers who require strong papers in particular colors.

A Canadian pulp and paper agent has received enquiries from Europe for pulp for Kraft papers, and if all that product were not converted into paper here, we could, no doubt, find an immediate market abroad for all the surplus pulp of this sort.

Among the English Kraft papers before the Canadian trade, that sold through

Edward Lloyd, Limited, Montreal, and made by Cooke & Nuttall, Limited, of Horwich, deserves notice. This tests to a strength equal to any Swedish or German Kraft, and is supplied to the trade in various weights, and either in rolls or sheets.

An expert informs the writer that Jack-pine or Banksian pine is as well suited for Kraft papers as spruce wood. This is very important, for there are vast areas of Jack-pine forests in Northern Ontario and Quebec, and in the North-West, and there is a common impression that Jack-pine is as poor a wood for pulp making as for commercial lumber. Our informant has had experience in the paper mills of Germany, Sweden, and the United States, and has made tests of Jack-pine to determine this point. When this has been demonstrated on a commercial scale, it will mean a great deal for the future of the Canadian pulp and paper industry, as it will almost double the source of Canadian raw materials, and bring into settlement some regions of Canada which are now marked off as hopeless in an industrial sense.



THE PNEUMATIC SAVE-ALL.

The Sherbrooke Machinery Company, Sherbrooke, Que., have received the following letter from the E. B. Eddy Company, Limited, Hull. It is an illustration of the pneumatic action of the fine wires used on the Pneumatic Save-All. "In reference to the Pneumatic Save-All your company furnished us last fall, for our news mill, we take pleasure in informing you that it is working in a thoroughly satisfactory manner, and doing all and more than you claim for it. We have not laid out one cent for repairs as yet and from all appearances, the wire will last for many many months before needing a new one. You may expect further orders from us at no very distant date."

PHILLIPS' PAPER TRADE DIRECTORY.

The 1910 edition of the above "Paper Trade Directory of the World," is ready for issue. It is published under the following titles:—

"Phillips' Paper Trade Directory of the World."

"L'Annuaire Phillips' de la Papeterie Universelle."

"Phillips' Adressbuch de la Papier Industrie der Welt."

"Anuario Phillips de la Industria del Papel del Mundo."

"Phillips' Adresskalender för Världens Pappers Industri."

"Phillips' Adresskalender för Verdens Papperindustri."

The principal features of Phillips' Paper Trade Directory of the World embrace the following:—

The Paper Mills of the World, given in alphabetical and numerical order, and arranged under the respective countries in which they are situate, together with a classification of the various makes of paper.

The Wood Pulp Mills of the World—Mechanical, Cellulose, Sulphite, Sulphate, Soda, etc. Also lists of:

Buyers of Paper, Boards, and Stationery throughout the world, as far as obtainable; of Millboard Makers, Enamellers, Paper Stainers, Paper Agents, Export Paper Shippers, Paper Stock Merchants, Wholesale Stationers, and Paper Box and Bag Makers.

Registered Water-Marks of the various Mills, and Stationers.

A list of the members of the Paper-makers' Association of Great Britain and Ireland, and Scottish Paper-makers' Association, and the various Associations connected with the kindred trades.

The executives of the leading Continental Associations, etc.

As in previous issues, another noticeable feature of the directory is a list of paper, board, and stationery buyers, which is of the greatest value to manufacturers of paper and boards, and mill

engineers, who will find it one of the most complete and authentic lists of the kind published. The Glossaries of Commercial and Trade Terms, the latter being given in six languages, met with unanimous appreciation, and I was pleased to learn from a number of sources that the addition last year of a Spanish section greatly enhanced its value. In this edition the list of the most important of the paper box and bag makers of the world has been very considerably extended, and the same may be said of the lists of paper agents, exporters of paper, wholesale stationers, millboard makers, enamellers, paper stainers, etc. Indeed, there is scarcely a single section of the work to which numerous additions have not been made.

The directory is published by S. Chas. Phillips, editor of the "Paper-Maker," 47 Cannon Street, London, E.C.



CANADA'S TRADE IN PAPER AND PULPWOOD.

The exports of paper from Canada to the United States for the eleven months ending with May 31st, amounted to \$1,301,090, and to Great Britain, \$912,674. Pulpwood exported to United States amounted in value to \$6,076,628, as against \$4,306,929 for the same period in the previous year. Total exports of paper out of Canada were \$3,163,842. Ground wood pulp was sent to United States to the amount of \$4,175,309 compared with \$4,306,929 in 1909. The imports into Canada of paper and paper manufactures were \$3,215,552 from the United States, and \$1,029,000 from Great Britain. It is interesting to note the rising value of pulpwood during recent years. In 1905, a cord was worth on the average, \$4.37; in 1906, \$4.31; in 1907, \$4.41; in 1908, \$5.16; in 1909, \$5.48.

PAPER MACHINE FOR SALE.—76"

wide; now in Canada; no customs duty; will sell cheap; immediate possession. Apply for particulars, Paper Machine, c/o Pulp & Paper Magazine.

PAPER FREIGHT RATES

At a meeting of the Pulp & Paper-makers' section of the Canadian Manufacturers' Association in Toronto, a strong protest was made against the new freight rates made by the Canadian Freight Association to go into effect if approved by the Dominion Railway Commission on the 15th inst. The paper-makers claim that the present rates are unduly high, especially to the smaller centres where shipments are usually made in less than carload lots. To the big cities in car-lots the advance is from 5 to 10 per cent. while to the smaller towns and cities the increase, in less than carload lots from Cornwall to Toronto is 7 cents per hundred pounds; to Montreal, 2 cents; to Hamilton and London, 5½ cents; to Chatham, 2 cents; to Brantford, 5 cents; to Peterboro, 4 cents; to Quebec City, 3 cents. etc.

A deputation of the paper-makers held a conference on the subject with representatives of the C.P.R. and G.T.R. at which they asked that book and writing paper, shipped for manufacturing purposes in rolls and in less than carload lots, be placed on the same basis as news print and charged from Class B to Class A, present rates being excessive. Another thing asked was for a better rate from Montreal, where a large amount of foreign paper is received under the terms of the preferential tariff and low ocean rates and sent through to far distant points in Ontario at a less figure than local manufacturers can ship.



RIBBED PAPER.

In the manufacture of the ribbed paper used by Chinese for writing paper the rib marks are one of its most important features and cannot be secured by means of ordinary dandy rolls, but are obtained by the use of a special felt, woven in such a manner that its pressure on the paper causes the impression which produces the very fine ribs. The thicker this felt the greater is its

elasticity and sharper rib marks are had. This method of marking paper is very costly on account of the cost of special felt, and some mills have secured very good results by the use of a small number of brass discs which run on the paper while it is circling a large drying cylinder. The one objection to this process is that it is very difficult to control the marks when the paper varies in drying; when the paper comes damp the marks become too heavy; when it is too dry the marks barely show. The markings obtained by this last method are better than those obtained by the use of felt, and paper made in this manner is more in demand by the consumers than is the first. The best of this grade of paper is made from all cotton stock, beaten and prepared for the machine with sharp beating tackle. It contains about 25 per cent. of loading and is run at a speed of about 250 feet per minute on the machine. The lower grades are made with 40 per cent. cotton and about 50 per cent. poplar wood sulphate.



—We have received a copy of the Bulletin of the Swedish Chamber of Commerce of New York, published in the interest of trade between the United States and Sweden. It is published monthly and as its name implies, contains a store of information on financial, commercial and general subjects.

—Prof. W. Herzberg of the Government Paper Testing Institute of Berlin, Germany, reports successful experiments in producing liquid for preserving paper made from ground wood. The success of treatment with this preservative is said to be very surprising. Sheets of newspaper which before were rotting and about to fall to pieces can be handled readily, and acquire a parchmentlike firmness. If, after an interval of several decades, it should be found necessary to repeat immersion in the solution, this will not damage the paper, and it would seem that in this way published matter might be preserved for centuries.

DETERMINATION OF LIGNINE IN SULPHITE PULP, ACCORDING TO PROFESSOR P. KLASON.

By C. E. B.

Perfectly dry spruce wood consists of about 55 per cent. cellulose, 10 per cent. of easily soluble hydrocarbons, 30 per cent. lignine, and 5 per cent. rosin, fat, ashes, etc. The easily soluble hydrocarbons and most of the lignine are dissolved in the digesting process. The cellulose can be completely freed from the lignine in the sulphite cooking process, but hardly when working on a larger scale, and usually not without loss of cellulose. All commercial sulphite pulp consequently contains some lignine, between 2 and 10 per cent.

The elasticity of the fibre is evidently of greatest importance for the strength of the paper. The time required for bleaching the pulp and the amount of chloride of lime necessary also depend on the percentage of lignine present.

A direct determination of lignine, by means of a cautious treatment with bromine-water and ammoniac successively with corrections for the cellulose dissolved during the treatment, is impracticable as a testing method on account of the long time required. Only colorimetric methods can here be used to advantage. Many experiments have been executed to estimate the percentage of lignine from the color caused by treatment with a solution of chloride of lime, but these methods are unreliable.

Pure cellulose is completely soluble without discoloring in pure, concentrated sulphuric acid. The solution darkens gradually, which, however, only is noticeable after an hour or more. The determination is, therefore, executed so that a certain quantity of the cellulose is dissolved in a known quantity of pure, colorless, concentrated sulphuric acid. The coloring thus obtained is compared with the one caused by dissolving an equal quantity of cellulose with a known percentage of lignine in an equal quan-

tity of the same acid. The way of executing the test, described in the following, has been found practical after many experiments.

22 mgm. air-dry, corresponding to about 20 mgm. abs. dry cellulose, are dissolved in 20 c.c. concentrated sulphuric acid in a graduated glass cylinder, having a capacity of 50 c.c., and with a perfectly fitting glass stopper.

At the same time a contra-test is done with a cellulose of a known percentage of lignine. When both samples are dissolved, which is facilitated by thoroughly shaking, the colors of both samples are compared in such a manner that the flasks are held between the eyes and the light. It is to be carefully observed that both flasks have been left standing with their contents for exactly the same time.

The first impression of the eye is generally correct. A difference in the percentage of lignine of 0.2 per cent. can easily be detected in this way. The percentage of lignine is obtained by adding pure sulphuric acid to the flask with the darker colored liquor until both solutions have the same color, and can then easily be calculated from the quantity of acid added.

The determination is more exact the closer the percentages of lignine in both samples are to each other. It is, therefore, advisable to have special samples of standard pulp as contra-tests for hard-boiled, and special samples for soft-boiled pulp. It would certainly be easier to have specially prepared color-scales as contra-tests, but as yet it has not been possible to prepare such scales of the right shade, and at the same time absolutely unchangeable.

This method enables the manufacturer to control, that his cellulose always has the same amount of lignine, and is especially valuable when different kinds of wood are to be treated, and when the time of boiling, the temperature used for boiling, or the strength of the acid used are to be changed.

For executing the testing method as described above are required: one pair

of scales, weighing accurately at least 0.5 mgm.; about 6 graduated testing tubes with glass stoppers; sulphite pulp with a known percentage of lignine; pure, colorless, concentrated sulphuric acid.

The above method ought to be valuable not only to manufacturers, but also to buyers and agents, enabling them better to judge the quality of the pulp required for different purposes. The fact that the quantity of lignine remaining in the pulp, is of so great importance, ought to be of enough interest to manufacturers as well as to buyers to be made an object of strict determination, in order to avoid useless litigations.



"AGRICULTURAL TEMISKAMING."

That enterprising paper, the "Temiskaming Herald," New Liskeard, has sent us a copy of a large and handsomely gotten-up book which they have just published in conjunction with the board of trade of that place. Mainly, its purpose is to tell the people of Old Ontario, and of the Dominion generally, about the wonderfully fertile district which exists in what used to be called New Ontario, but what is now more generally known as Northern Ontario. The agricultural resources of the district lying north, east and west of New Liskeard though only barely conjectured as short a time ago as five or six years, are very great, and it is only right that the people of the older parts of the province should realize this fact at a time when so many of their sons are going West, thus depriving it of their services. Farmers who settle in the Temiskaming region are still in the province, and continue to trade with Ontario business men. Such farmers themselves have many advantages for themselves, as compared with those who migrate to the prairies. They have a fertile, wooded, undulating, well-watered soil, which though it requires more labor before fitting for agricultural operations than does the Western prairie,

offers an easier livelihood on that very account. The pulpwood with which large parts of this region are richly endowed make it probable that it may be the seat of valuable pulp and paper making industries in the not far-distant future.



STATISTICS OF THE USE OF WOOD.

The Dominion Forest Service, which last year inaugurated the work of collecting statistics with regard to the use of wood and wood products in the various industries, reports fair progress with the work for this year. Up to date some thirty-three per cent. of all the schedules sent out have been returned. Some industries show a much larger percentage than this. The manufacturers of furniture, agricultural implements and veneer, head the list as having returned the greatest proportion of the schedules sent them. The lumber manufacturers take a place some distance below those just mentioned, while the steam and electric railways are "betwixt and between." Quite a number of pulp manufacturing establishments are also still to be heard from.

A second circular is now being prepared which will be sent to those who have not yet returned the copy of the first circular sent to them. Needless to say, any information sent in is treated as strictly confidential, only totals for the different branches of manufacture being published. Bulletin No. 8 of the Forestry Branch ("Forest Products of Canada, 1908") has already been published, and copies may be had gratis on application to the Superintendent of Forestry, Ottawa. The bulletin may be had both in French and English. From this can be seen the form in which the results are sent out.

The Forestry Branch is anxious to have the results for 1909 compiled and disseminated as soon as possible, and it is to be hoped that those schedules not yet returned will be sent in to them promptly. The Superintendent of Forestry is R. H. Cambell, Ottawa.

PULP AND PAPER MARKETS

Toronto, July 9, 1910.

The pulp market is not particularly active though some in the trade believe it shows plain signs of improvement. There is certainly a very general feeling that the market will become considerably firmer within a short time and that prices will go up. The Sturgeon Falls mill is practically sold up while the Spanish River mill is again beginning to sell, and some good shipments have already gone forward. The price at the mills ranges from about \$17 upwards, or \$22 to \$23 delivered and where the mills cannot get that price at present they are piling, in the full expectation that the dry weather and the requirements of the trade are bound to bring about a demand before long. For sulphite there is a good enquiry at \$41 to \$43 for unbleached or \$46 to \$52 for bleached.

As to paper, conditions are good. There has been somewhat of a cessation in the extraordinary demand for news print from the United States though even now it is by no means out of evidence. Prices offered, however, have eased off materially, so that now \$2.00 or at most \$2.10 is the price offered at the mills. Prices have improved a little for wrappings, with greater activity in the demand. In kraft, as also in paper bags, some cutting is going on. Book and writing paper mills are very busy, and some have orders which will keep them occupied until the fall.

* * *

Montreal, July 9th, 1910

The feature of the pulp and paper business this month, in and about Montreal, is the strong condition of newspaper. Nearly all the mills are reported as being busy as beavers and anyone trying to place a large contract for news at the present moment would find, if the quantity could be secured, that it would be at prices favorable to the manufacturers.

Ground wood, as usual at this time of the year, is not moving in large quantities. Prices run at about \$19 at the mill

or an advance of about \$2 over price of two months ago.

The spell of hot, dry weather, which was experienced during the latter part of June and beginning of July, has affected to a considerable extent the streams on the south shore of the St. Lawrence. In fact, we understand several small pulp mills, situated on shallow streams, have closed down till more rain comes. In the Eastern States, though not so bad so far, conditions are tending the same way. The Black River, where a large quantity of ground wood is handled, is very low. The other streams are continuing to lower, so that a strong demand for Canadian stuff is expected to gradually set in from this time until any accumulated stocks in the mills in the Dominion will be shipped out.

The demand for sulphite pulp is greater than at any time within the last 3 or 4 years. Both Canadian and United States consumers are heavy buyers. In fact, one of the largest mills in the country reports being 500 tons behind its orders.

In book papers the demand is largely in excess of the production. The new machine of the St. Lawrence Paper Mills, which starts up in September will be a timely help to supply the shortage.

Wrapping papers are reported as dull and prices cut.



NORWEGIAN PULP MARKET

There has been a little livelier inquiry for chemical lately, though prices are so far practically unchanged. The delivery on contracts has been quite considerable. Three large mills have balanced their books for 1908; the result is not encouraging. In mechanical, the first half of March shows a good many sales for 1911 and 1912. But prices continue unsatisfactory, considering the cost of production, and the question of a reduced production has been under discussion in the organization for some time. There appears to be a strong disposition toward an agreement of this kind.

The Pulp AND Paper Magazine of Canada

Vol. 8. — No. 8. TORONTO, AUGUST, 1910

{ Canada \$1 a Year
{ Single Copy 10c.

Pulp and Paper Magazine

A monthly magazine devoted to the interests of Canadian pulp and paper manufacturers and the paper trade.

Subscriptions: Canada and British Empire, \$1.00 per year. United States and Foreign, on account of postage \$1.50 per year.

The Pulp and Paper Magazine is published on the second Tuesday of each month. Changes of advertisements should be in the publishers' hands not later than the 1st of the month, and, where proofs are required four days earlier. Cuts should be sent by mail, not by express.

BIGGAR-WILSON, Ltd.

PUBLISHERS.

**Offices, Confederation Life Building,
Toronto, Canada.**

THE GRAND TRUNK STRIKE.

Happily, the strike on the Grand Trunk Railway System is over, but its settlement came not before a general dislocation of the business of the country. In the delay and confusion and general injury to business which resulted the pulp and paper trade suffered a full share. J. R. Booth's lumber mill at Ottawa had to close down entirely, as it depends on G. T. R. cars to remove daily the cut of the mill, this outcome being the result of the arrangements Mr. Booth had made for hauling timber when he was owner of the Canada Atlantic, which railroad was taken over by the G. T. R. Fortunately, the pulp and paper mills were not directly affected, though their

operations were considerably hampered. Besides this case of a great industry having to close down through a disagreement between the executive and working staff of a great public service corporation, numberless instances are recorded where paper and other materials were tied up for days at a time in freight cars on sidings.

Happily, as we have said, the strike is now over, but it is not too late to ask ourselves a few pertinent questions as to the relations existing between the citizens of this country and the corporations who are supposed to give them service.

The very excuse offered by Mr. Hays, the President of the G. T. R., for not complying with the requests of the men indicates that something is radically wrong. His excuse for not giving the men the standard rate of pay enjoyed by employees of the C. P. R., as well as the majority of other railroads, was that the G. T. R. could not afford it, but that as soon as they had their Western connections in operation, with the high freight rates obtaining thereon, they would be able to give their men the standard wage scale.

In other words, the people of Canada are to be at the mercy of the Grand Trunk Pacific in the future as they have been at the mercy of the C. P. R. in the

past. Yet if ever there was a commercial undertaking which is the creature and offspring of a Government, it is the Canadian Pacific Railway. If ever there was a corporation which should be in perpetual subservience to the people and Government who created it, that corporation is the C. P. R. Bonused to the extent of millions from the public treasury and further subsidized by grants of land now worth billions of dollars, and favored with the more important asset of the good-will of the people, the only limit to its opportunities for expansion was that profits beyond ten per cent should be returned to the people. This was the provision in its charter, but for years past it has been creating one subsidiary company after another as a means of burying out of reach the profits which it could not otherwise dispose of, and dividing among its shareholders the watered interests thus created. Our Government seems blind, and deaf and dumb to these transactions.

Then follows the Grand Trunk, which, after receiving millions from the Provinces before the date of Confederation, persuades the Government to build the unprofitable ends of a transcontinental system of railway while itself retaining unfettered control of the fat centre, and it is estimated that these unprofitable ends will cost the country \$200,000,000 instead of the 30 or 50 millions originally counted on. Most people approve of the new transcontinental railway, but there was no reason why the people should not own or control the whole. Instead of this we have a second monster corporation on the back of Government controlling and dictating its transportation policy and withholding from the people

the cheap and safe facilities to which they are entitled as creators of these undertakings.

And Mr. Hays' plea to the strikers and to the public has been that he would pay the men their just claims (just, because otherwise he would have withstood them) as soon as a still larger proportion of his road, the western, was in a position to charge the high rates for service to which Canadians, especially in the West, have become so bitterly accustomed.



RELATIONS WITH THE UNITED STATES.

Probably it is not of much use at this time to go very deeply into tariff problems, as they affect relations between this country and the United States. It is an understood thing that the whole question, whether actual reciprocity is on the tapis or not, is to come up for discussion between representatives of the two nations as early in the coming fall as can be arranged. Duties on pulp and paper and kindred materials will form an important item in the negotiations, but will doubtless be taken up in conjunction with the entire subject, so that for the moment not much profit is to be gained from a repetition of the special points pertaining to that industry.

Some figures recently published in Washington, however, draw attention in a peculiarly strong manner to some actual facts of the aggregate trade between Canada and the United States, which Canadians should remember in any negotiations with their neighbors and to which the latter's attention should be forced in the event of their trying to blink them.

Last fiscal year United States exports to Canada were valued at \$242,000,000, an increase of \$52,000,000 over the previous year. This sum for exports to Canada represents roughly about one-third of Uncle Sam's exports to the whole world. And this to a country of barely eight millions of people, whose market is increasing more rapidly perhaps than any other in the world. This \$240,000,000 odd of exports represents, therefore, only the beginning of things.

Against this, Canada sent to the United States about \$90,000,000 worth of goods. This is a considerable increase over the previous year, it is true, but it must always be remembered that by far the larger proportion of these exports were raw materials, which it is more necessary for American manufacturers to receive than for us to give. Any policy of so-called reciprocity, therefore, which facilitates the entry of such Canadian products into the United States in return for our giving them concessions on manufactured goods, is no reciprocity at all, but a humbug pure and simple. It is like getting something you want very much in return for something one would prefer to get rid of. That sort of reciprocity Canadians cannot consider for a moment. The above figures serve to accentuate the fact that the relative customs duties of the two countries are altogether too one-sided to allow of a merely equal clipping off. Bring the two tariffs on a nearer equality with one another, and then begin the clipping, but not before. Suppose two walls, one of 3 feet high, the other 6 feet. To take a foot off the top of the 3 foot wall is a very different matter from taking the same amount off the 6 foot wall. That is the case in a nutshell.

The Canadian paper industry, so far as exports to the United States are concerned, makes an important section of the whole tariff question. Already the value of these exports has been reaching \$5,000 per month for news print, and in the near future, owing to natural conditions and the force of circumstances, this amount is bound to become very much larger. After all, however, paper is only one item in the whole question of reciprocity. Free Canadian paper may become an American necessity. It behoves Canadians not to give away too much on the strength of even such a concession as that.



MR. NORRIS' BULLETINS.

Recent bulletins issued by Mr. Norris, of the American Newspaper Association, refer to the manner in which natural conditions favor cheaper paper; the plentifulness and consequent cheapness of Canadian pulp wood; the shortening of supplies by paper makers; the advantage of storing paper; the superiority of Swedish papers; and various other matters, all conducive to the bearing down of the price of paper.

President Hastings, of the American Paper and Pulp Association, with the idea, no doubt, of refuting the enemy by means of the words out of his own mouth, has reprinted some of the bulletins and sent them to the paper manufacturers, together with a few comments on the absurdity and departure from veracity of some of the statements made therein.

The claim about all the water streams being so full of water as to render the production of pulp easy and

cheap is so palpably beside the mark that it needs but little notice. We have seen carefully compiled meteorological reports which show that the rainfall in many sections of the Eastern States has this season been 60 per cent. smaller than was the case last year, which itself was an exceedingly dry year. Also, that for the last six months it was lower than at any like period for the last ten years. Another disproof is provided in the fact that the mills both in the Eastern and Western States are making a loud outcry for Canadian ground wood, which they find it difficult to obtain at almost any price.

With reference to the supply of paper on hand, Mr. Hastings asks this pertinent question: "If it is true, and it apparently is, that there is never over five to thirteen days' supply of news print on hand, taking a period of over a year, then is it not up to the consumer of paper to see that there is a larger supply of paper kept on hand?"

"If print paper stored five years will run well on the press, and every newspaper, in proportion to its circulation, kept as much paper on hand as the Chicago News has, there would be no question of an adequate supply of paper, or a uniform price for the same."

Mr. Norris' remarks about the superiority of the Swedish paper are curious in view of the fact pointed out by Mr. Hastings that only eleven tons have been recently brought into the United States, notwithstanding its attractive price, while during the same time, something like 5,000 tons per month of 32 pounds paper have been imported from Canada at a higher price.

Mr. Hastings does well to bring these matters to the notice of paper manufac-

turers who otherwise, without knowing the true facts of the case, might be affected by the interested and prejudiced statements so persistently set forth by Mr. Norris.



—U. S. Consul Willrich, of Quebec, in a report to his Government, states his opinion that there is not likely to be any shortage in the supply of pulpwood in Quebec Province because of restrictions upon the export of wood cut on Crown Lands. In spite of the prohibition he says the supply on hand, together with what may be secured from private lands, will be adequate to the demand. The object of this communication from the Consul is evidently to offset the alleged attempts made to increase the price of paper on account of the situation in Quebec. What he says regarding the large quantities of pulpwood available for exportation may have been true at the time he wrote, but the market for pulp is a different proposition now. Besides this, perhaps, he has forgotten to take into account the extremely low water in many of the states, which would prevent the grinding of wood, even if the mills had it to grind. In parts of the Eastern States and precipitation has been 60 per cent. lower than last year, which itself was a very dry one. Temporary happenings should not be construed into permanent facts, even for the sake of "bearing" the price of paper or of minimizing the dependence of the United States on Canada for raw material.



The Canadian Boomer and Boschert Press Co., Ltd., are now putting in five hydraulic presses of 600 tons' capacity each, at the Chicoutimi Pulp Mills. They have also installed eight presses of like capacity in the North Shore Power, Railway and Navigation Co.'s pulp mills at Seven Islands, Que.

HOW I MADE SULPHITE PULP WITH 8 PER CENT. SULPHUR

By C. E. Bandelin.

(Continued from last Issue)

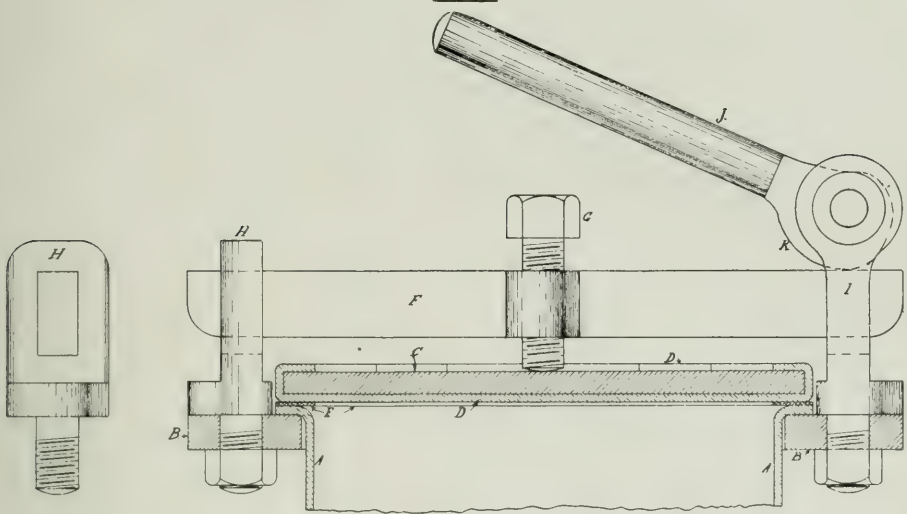


Fig. 4.

The above is a sketch of the "quick opener," such as used at the openings marked Q.

On the vertical tubes of the cooler, some inches from the bottom, is soldered a short piece of 7-inch lead pipe, A, at the end of which is soldered a flange, bent over and around another loose iron flange, B, holding it steady. On this iron flange are fastened on one side an eyebolt, H, and on the other a bolt, I, with two arms holding the excenter handle, J. The end of the pipe, A, is closed by an iron cover, C, the inside of which is covered with sheet lead, D. An iron bar, F, is fitting in the openings of both bolts and has in the centre a set of set-screws, G, by means of which it can be regulated so as to be subjected to the pressure caused by the excenter, when the handle is turned down. A ring of packing, F, preferably asbestos-rubber, is placed between cover and flange.

The sketch shows the device in position to take off the cover. The bar, F, can now easily be moved to one side,

then lifted up and taken out, and the cover is loose. When closing, the bar is first put through the openings in the bolts, H and I. It is then adjusted with the screw, G, so as to come close under the excenter, and the handle, J, is turned down, when the cover will be pressed down against the flange with great power. The screw needs only very seldom to be adjusted.

The flange, handle, etc., should preferably be made of malleable iron, but also common cast iron may be used, in which case, however, the dimensions will have to be made somewhat heavier.

It is evident that a considerable saving of time is obtained by using this simple device, as compared with a blind flange with 6 bolts, which would have to be loosened and fastened for each time the cover has to be removed.

This opener has been described to some length, because it will be found useful in a number of places in a mill, not only for this and other coolers, but also for many other purposes, and it is

the intention of the before-mentioned concerns to keep a line of these openers from 4 in. up to 15 in. diam. in stock.

Immediately after the cooler comes the acid apparatus. It is a combination of the tower and chamber systems, and has the advantage of both, without their disadvantages. Fig. 5 is a theoretical sketch, showing the arrangements of chambers, pipes, etc., as it would be rather difficult to explain the system from the actual drawing without first understanding the theory.

formed in this tower is collected at the bottom and thrown up by the pump J in a tank c on top of tower C. From here a pipe R with valve U goes to top of tower C, and an overflow pipe O takes the excess of weak acid back to tower D.

The weak acid entering at top of tower C meets there a somewhat stronger gas and has itself gained considerably in strength, when it arrives to the bottom chamber of C. From there another pump I throws it up in tank b

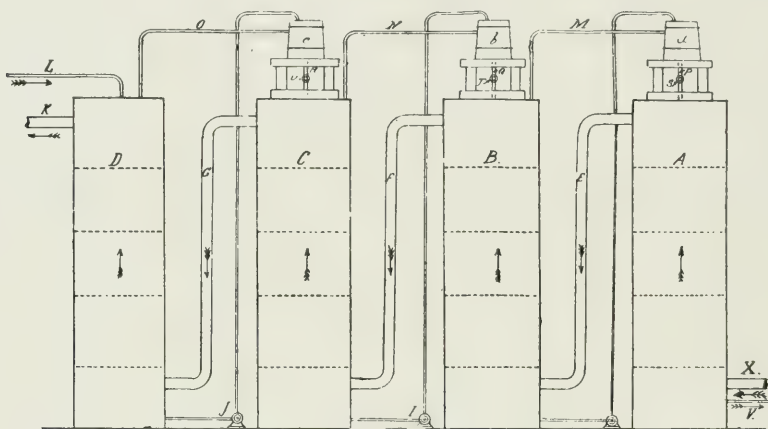


Fig. 5.

A, B, C, and D are four towers, about 40 ft. high, and 6 to 7 ft. square. They are divided in five chambers each by means of four strong wooden grates, upon which rests rock of lime, filled in through doors in the sides. There is no rock lime in the bottom apartment, which only serves as a kind of settling tank for the acid. The gas from the coolers enters at X, goes upwards through tower A, down from top of A through pipe E to tower B, just below the first grates, and in the same way through B, F, C, G, and D to the outlet K, which is connected with the smoke-stack, a fan or an exhauster, in order to procure the necessary draft, which should correspond to about 2 in. of water at the gas entrance.

Cold water enters the last tower D through pipe L and meets the nearly exhausted gases, from which it absorbs their last SO_2 . The very weak acid

on top of tower B, where the same process is repeated, although now both the overflow through N and the acid, so to say, "brought forward" through Q and T are considerably stronger. The acid from the bottom of tower B is again pumped up in tank a on top of A, and from here only just so much acid is let down into A through pipe P and valve S, that the acid at bottom of A has the required strength.

The rock lime used was of different kinds, more or less hard, and easily attacked by the SO_2 . The hardest grades were, in fact, a kind of marble, and were used in tower A, where the gases are strongest and where there is only comparatively little liquid. In tower D the softest grade of rock lime, somewhat like a hard cray, was used, and the intermediate towers were filled with limestone of medium hardness.

Rock lime of the most varying hardness can be used, but there must always be some very soft lime in the last chambers, to take up the last traces of SO_2 . If a percentage of magnesia is desirable for some reason, a dolomitic limestone may be used, or calcined magnesite (magnesia) may be charged in one or several of the chambers, prefer-

valves, S, T, U on the pipes P, Q, R. In the mill in question it was found that the acid from A usually had the strength desired, when about $\frac{3}{4}$ of the acid pumped up in the tanks was allowed to go back again and only $\frac{1}{4}$ was "brought forward." Sometimes, however, about $\frac{1}{2}$ of the acid pumped up was brought forward, and another time

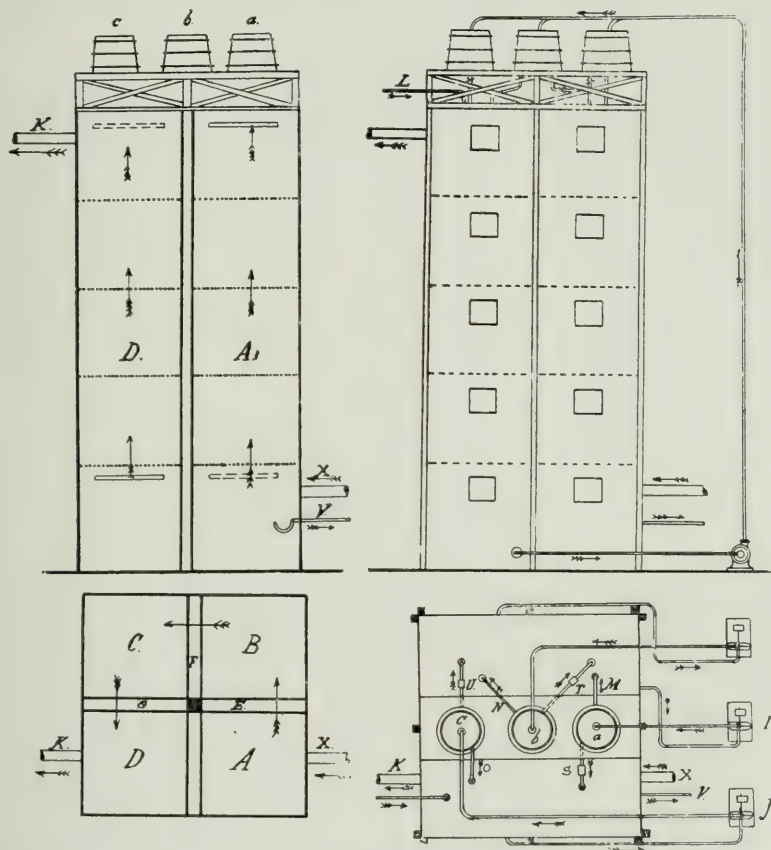


Fig. 6.

ably in tower A, where the gases are strongest.

It may sometimes happen, especially in summer, that the acid does not hold the percentage of free SO_2 desired. In this case it was found advisable to fill up the lowest or the two lowest chambers in tower A with pieces of wood, coke or some other indifferent material in order to offer a large absorbing surface to the gases.

The most important thing with the whole system is the handling of the

about $\frac{1}{6}$, but these two figures represent the limits.

This means that the acid usually had to pass through each of the first three towers four times, before it leaves tower A as ready acid. The most important factors here were the strength of the acid desired and the temperature of the water.

With this system it is very easy to obtain an acid of just the desired test, high either in SO_2 or CaO . While the gases, entering at X, often tested 16-18

vol. % SO_2 , hardly a trace could be found at K.

As there was a small vacuum in the whole acid system no SO_2 could come out in the buildings, and no smell could be noticed, which seems to be regarded as unavoidable in this country, though it both represents a loss in money and makes the work disagreeable to the laborers. If any small leak should occur here, it would only mean that some air would be sucked into the system, which would not do any harm. An excess of air leaking in would at once be detected by one of the many daily gas tests.

As stated before, the acid plant was not built exactly as sketched in Fig. 5. Fig. 6 gives a more accurate idea of how it really looked. The four towers were built together so as to form one big, square tower, and there were left narrow spaces between the separate towers, which spaces correspond to the pipes E, F, G, in Fig. 5, and which take the gases from top to bottom of towers. The whole construction was thus made steadier and also easier to keep tight. If there should occur some small leaks on the two inside walls of the separate towers, it would not do much harm, as the gases would not be lost, but come in the next tower. No leaks, however, need to occur, if the towers are carefully built in the following way: For the walls 3 in. horizontal planks, as free from knots as possible, are used, and held together by upright timbers, connected with iron rods. The planks should be carefully selected from as closely grained and pitchy wood as possible, and care should be taken that the yearly rings don't run across the planks, as the acid will easier find its way through the spaces between the rings than through the rings themselves. Lines should be drawn on each plank, dividing the long, narrow ends in three equal parts, and the central part should be crushed down with the sharp edge of a hammer, say, $\frac{3}{8}$ of an inch and even less. The planks should then be carefully planed off again, until the surface

of the ends is even. The whole structure is built of planks treated in this way, and when the planks become wet the central part swells up much stronger than either the outside parts, and makes the joint absolutely tight without any putty or oakum. It may be advisable to steam the whole acid system before starting up, in order to have it tight from the beginning.

In order to distribute evenly the liquid coming down through the roof of the towers, the lead pipes P, Q, R, e, just inside the roof, and two pipes of smaller diameter, bent in form of half circles, divide the acid in two streams, which meet each other. The pipes do not end just opposite each other, but the openings are directed a little towards the sides. Both streams thus meeting each other will cause the liquid to be divided over a comparatively large surface.

The overflow pipes, M, N and O, are bent like a U outside the towers, in order to form a water seal; inside they contain only a few inches. The end is somewhat flattened out and directed upwards against the roof. The acid strikes the roof and falls down as a spray on the rock lime.

The valves S, T, U can consist quite simply of a piece of rubber hose, with some kind of a squeezing arrangement. The doors can have a kind of "quick opener" built on about the same principle as the one described before, but can be shut tight in many other ways.

The vertical timbers, which hold the whole system together, are pressed tightly against the boards by means of iron stays, both in the centre, going through the gas channels, and on both sides, outside the walls. The central stays are drawn through lead pipes, where they pass through the gas channels. The 3-inch planks are substituted by 6-inch timber just below, where the ends of the grates reach the wall, giving them a 3-inch surface to rest on. The grates consist of boards of oak, say $1\frac{1}{2}$ in. by 6 in., and spaced 1 in. apart.

Below the bottom grates in each tower there should be a testing apparatus, shown in Fig. 7. A are the grates, B is a leaden funnel communicating with the lead cylinder D through the pipe C. E is a bowl, made of sheet lead and holding the glass clock F. In D is an hy-

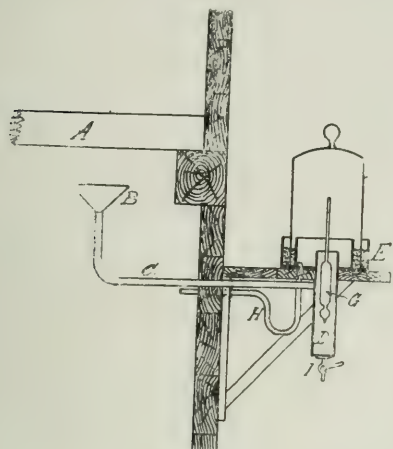


Fig. 7.

drometer G, and at the bottom is a test-cock I. H is an overflow pipe back in the tower. This apparatus makes it possible to see at a glance, just what kind of acid is being made for the moment, and samples of the same acid are easily drawn from I for chemical tests.

For effecting the necessary circulation pumps of different construction can be used. They can be centrifugal pumps, plunger pumps, diaphragm pumps, etc., and in the mill now described, small centrifugal pumps of phosphorbronze were used. If the author now were going to build an acid plant, he would, however, substitute these three pumps with one quadruple acting piston pump, which also would elevate the water required. It would be a belt-driven piston pump with two cylinders with ball valves, but these valves arranged so that the pump in fact makes the work of four separate pumps. Each cylinder acts like one separate pump on each side of the piston, and if a small leak should occur between piston and walls, it cannot do any harm, as in this case only

liquids of the same kind, though of different strength, would be mixed. The arrangement is easily understood. Depending upon local conditions, it may sometimes be better to have the pumps arranged as two separate, double-acting, one-cylinder pumps. They can, of course, be built either as self-supporting pumps, as wall-pumps or horizontal, and in fact the number of pumping cylinders that could be driven from one shaft is unlimited. Each unit should, however, have its own clutch coupling. For a mill with, say, 2 acid apparatus, the author would suggest a horizontal, 4-cylinder and consequently octuple-acting pump, with one clutch coupling for each apparatus.

The pipe V takes the acid to the storage tank.

The acid was tested in the usual way

$$\begin{array}{cc} n & n \\ \text{with } \text{---} J, \text{ and } \text{---} \text{NaOH for total and} \\ 10 & 10 \end{array}$$

free SO_2 . When leaving the towers it usually held about 3.60% total and about 2.00% free SO_2 ; the balance in the desired strength being obtained by the reclaiming process.

Different kinds of wood require acid of different strength to obtain best results. Hemlock, for instance, is best cooked with acid testing at least 4% tot. SO_2 and cottonwood can be cooked with acid of 2-2½%. These two kinds of wood, however, represent the extremes and all other kinds used on a manufacturing scale come between these limits.

The manner in which the wood is handled before entering the mill is also of influence on the consumption of sulphur. The wood should be cut in winter and 3 to 5 or more strips of the bark should be peeled off the whole length of the timber. This facilitates the drying and also the dissolving of some of the sap, etc., in the raw wood, if it is to be floated.

(To be continued).

MONSIGNOR LAFLAMME.

In the death, last month, of Monsignor Laflamme, rector of Laval University, Quebec, Canada has lost one of her very ablest scholars and most devoted patriots. His heart was as large as his brain and he was as genuinely esteemed by Protestants who knew him as by his fellow Roman Catholics. His modesty and unselfishness gave a charm to his character which could only be appreciated by those who had the honor of knowing him intimately. He declined honors offered to him by his Church, in order that he might devote himself more wholly to his educational work. Though specially at home in the study of geology and physics, in which he gained a world-wide reputation and for his contributions to which he was honored with the vice-presidency of the International Geographical Congress, receiving other honors from the geological societies of various countries, his mind was broad enough to grasp the importance of other great problems of science. For example, he threw himself with a whole heart into the problem of the conservation of the natural resources of Canada, particularly of the forests. He realized with unerring instinct the vital importance of the preservation of Canada's forest assets, and when the publishers of this magazine issued a pamphlet on the forestry question in its relation to the pulp and paper industry, he aided in this educational work by translating the pamphlet into French and by circulating it at his own expense throughout the Province. His work in this field will be gratefully remembered by the pulp and paper manufacturers of Canada, and particularly those of Quebec, and there is no doubt that the plea he put forth for the preservation of the forests of Quebec had a most important bearing on the policy that has since been adopted by the Government and on the grasp which the people of Quebec now have of this ques-

tion. It is, moreover, safe to predict that there will be no recession from the policy of forest restoration and forest preservation, that is being put into effect at the present time. The life of Monsignor Laflamme stands before his fellow-countrymen as an ideal and a model for imitation by all.

**AMERICAN INSTITUTE OF CHEMICAL ENGINEERS.**

The second semi-annual meeting of the American Institute of Chemical Engineers, was held at Niagara Falls, Ont., on June 22nd to 24th. This was the first convention of chemical engineers in Canada. The Canadian members present were Dr. Eugene Haanel, of Ottawa, and J. A. DeCew, of Montreal. Dr. W. H. Ellis, of Toronto University, also attended the meetings as a guest of the society.

On Friday, the 23rd, a paper was read before the Institute by Mr. DeCew, entitled, "The Development of Chemical Industries in Canada," which will be greatly valued as an article for reference, as very little has been written on this subject.

In dealing with the acid and alkaline process of cellulose manufacture, special reference was made to the rapid growth and establishment of the sulphate process in Canada, which has now practically consumed all of the salt cake that is produced in this country, which was at one time almost a drag on the market.

The other industrial products discussed were as follows: Coal tar and ammonia, explosives, fine chemicals, wood distillation products, petroleum, salt, milk, sugar, starch, rubber, glue, paints, fertilizer, glass, beverages, soap and glycerine, calcium carbide and electro chemical products, Portland cements.

PURIFICATION OF WASTE WATER FROM SULPHITE MILLS.

Translated for Pulp and Paper Magazine
from "Svensk Papperstidning."

The well-known Swedish authority on chemical pulp industries, Professor P. Klason, read a very interesting paper on this subject at a recent meeting of Swedish chemists, treating it both from a scientific and a practical point of view. Prof. Klason first explained scientifically the processes occurring in the sulphite digesters, and showed that big quantities of organic substances are daily being discharged with the waste water from sulphite mills. These organic substances consume much of the oxygen dissolved in the water into which they are discharged. If the waste water is discharged in small rivers where its quantity amounts to a considerable percentage, it can go so far, that the oxygen in the water is reduced to less than 2 cub. centimeters per litre, which is the minimum for the life of fishes. It has also been noted that fishes which have lived in water contaminated in this way, get a disagreeable taste of tar when boiled.

The contamination of the water is obnoxious in still another way. Pulp fibres adhere to the grass on the shore and kill it, and this is a nuisance to the owner, as this grass is a valuable food for the cattle. The water gets a disagreeable smell and taste. The fibres also kill young fishes by obstructing their gills, not to say anything about their mating places being destroyed. The speaker then told that several sulphite mills had made successful experiments in order to eliminate these inconveniences by collecting the waste water in big ponds, where it is completely or partly stored during the time when there is only a little water in the river, into which the waste water is finally to be discharged. Such ponds, which must be very big, have given good results, which was shown by the results obtained at the Fredriksberg sulphite mill Sweden.

The speaker believed that the local conditions must be exceptionally bad if

the worst inconveniences could not be eliminated by using reserve ponds. It is not to be avoided that nearly all industry more or less contributes to create some inconveniences for the neighborhood. It is evident that especially those branches of the industry which contribute materially to better the commercial balance of a country, must be protected, and some inconvenience of one kind or another must not be allowed to cause restrictions. It is of the greatest importance to a country to try to keep up the economical equilibrium by means of the export industry, especially if the import of foreign goods is great. No tendency towards any shrinkage of the import has appeared as far as Sweden is concerned, rather to the contrary. The speaker believed, however, that the leaders of the industry could do much to eliminate the worst inconveniences of the polluting of the water, if they only observed certain rules, and they ought to be obliged to do so.

Paper From Corea.—The paper made in Corea is said to be better than the Chinese and Japanese paper. The Corean paper should be about the best in the world. It is exclusively made by hand and no kind of machinery is used. The bark of *Proussonetia Papyrifera*, collected in the spring, is used as raw material. This bark is beaten in water to which a large quantity of wood ashes has been added, and the beating is continued until a thick mass has been formed.

The other kinds of paper which are not regarded as first quality in Corea, are of an excellent quality and quite as good as the best Chinese and Japanese papers. It has been said that American concerns are trying to obtain Corean papers.



SHERBROOKE MACHINERY CO.

The Sherbrooke Machinery Co., Ltd., Sherbrooke, Que., have recently furnished the Miramichi Pulp and Paper Company, and the Brompton Pulp and Paper Company, and the new mill of the Quebec and St. Maurice Industrial Com-

pany, at La Tuque, Que., with their latest design Three Roll Hydraulic Wet Machines. They have also just received an order from the Brompton Pulp and Paper Company, for ten standard Two Roll Wet Machines, Extra Heavy Design, for their new Ground Wood Mill. They have received a letter which Mr. Bothwell, the General Manager, wrote them, dated July 7th, 1910, notifying them that they had accepted their proposition. These machines are to be installed in their new Ground Wood Mill at East Angus. The Sherbrooke Machinery Co. have a large equipment of machines in the mill of the Anglo-Newfoundland Development Company, at Grand Falls, Nfld. The following is a copy of letter dated July 5th, received from that company, signed by both their Superintendent and by their Superintendent of the Sulphite Plant. This equipment consists of eight Pneumatic Save-alls, four Pneumatic Sulphite Thickeners, and ten Ground Wood Thickeners or Deckers:

Dear Sirs,—

We have your Pneumatic Save-alls running in our plant here, as well as the Pneumatic Thickeners and your Ground Wood Deckers. We are very satisfied with the working of them all, and we feel very justified in giving you the highest testimonials as to their working, and we consider them the most economical process we have seen, and we should have great pleasure in recommending them to any of our friends in the trade.

Yours truly,

Anglo-Newfoundland Development Co.
Ltd.

Vincent S. Jones,
Superintendent.

E. B. Buwik,
Superintendent Sulphite Mill.

The following letter, signed personally by J. R. Booth, Ottawa, speaks for itself as to the merits of the Pneumatic Save-alls, made by the Sherbrooke Machinery Co.:

Messrs. Sherbrooke Machinery Co.,
Sherbrooke, Que.
Gentlemen,—

I have much pleasure in certifying to the excellent results which I have obtained from the Pneumatic Save-alls, that I have purchased from your firm. As you are aware, I now have five of these machines in operation, and I find they are a very considerable saving, both directly and indirectly. The direct saving is evident to anyone passing a machine, who can see how much stock is taken from it. The indirect saving is also valuable as the machine shows immediately when there is a leak anywhere.

It is contrary to my usual practice to give recommendations such as this, but I have been so pleased with the operation of your Save-alls that I have broken through my usual rule in this instance.

Yours truly,

J. R. Booth



LAKE NEPICON PULP LIMITS.

The Ontario Government will shortly invite tenders for the purchase of the right to cut pulpwood in the area adjacent to the Nepigon River and along the shores of Lake Nepigon in Thunder Bay district. The area in question covers several hundred square miles. It will be remembered that tenders were asked for two years ago, but the figures submitted were not satisfactory to the Government. From the inquiries that have been made recently it is believed that with the increased value of pulpwood tenders will be received that will prove satisfactory.

An important condition of sale prohibits the exportation of either pulpwood or wood pulp itself, and makes it obligatory upon the lessee to spend half a million of dollars in erecting and equipping a paper mill. When the concession was advertised two years ago the condition governing this point was that the successful tenderer should enter into an agreement with the Government to erect and operate a mill with a daily output of

150 tons of paper, and to employ an average of 250 hands for at least ten months each year. It was further stipulated that no wood cut on the territory should be exported. These conditions are retained, with the change that the pulp may only be exported in the form of paper.

The successful tenderer will be given the right to cut spruce, poplar, white-wood, and banksian or jack pine nine inches and upwards in diameter along the Nepigon River for a distance of five miles inland, and along the shores of Lake Nepigon for five miles inland. The right to cut pulpwood continues for twenty-one years, and is subject to such regulations as to cutting, measuring, etc., as may be made by the Government from time to time. Tenderers will be called upon to state the amount they are prepared to pay as a bonus in addition to the ordinary dues. The tenders will be decided according to the amount of this bonus. The regular dues are forty cents a cord for spruce and twenty cents a cord for all other woods mentioned. The Government retains the right to change these dues. The successful tenderer has no right to cut other timber or to use or dispose of the land in any way.



SITUATION IN THE UNITED STATES.

A correspondent of Pulp and Paper Magazine, who has been travelling in the United States, sends us the following notes:

Most of the newspapers are unfriendly to the International Paper Co.

During the strike, nearly every paper contracted with I. P. Co. had to buy outside at higher prices. In extreme cases as high as 3 cents.

Western papers paid more than Eastern. I suppose for geographical reasons.

It is expected the I. P. Co. would have trouble in settling accounts with these customers. Some were talking of questioning the validity of the strike clause

in their contract with the International.

Chicago papers other than Hearst's claim that Hearst's had the preference in getting what paper the I. P. Co. were able to make.

One large Chicago morning claimed the strike cost them \$15,000.

Some of the newspapers could only get out half size papers, i.e., 12 instead of 24, pages.

New mills being built in Minnesota and Wisconsin will help take care of the Western business.

The prices will be about the same as for the last year or two.

The reduction in duty to \$3.75 per ton on paper made from wood not cut from Crown Lands will help Canadian mills who own their own limits to export to U. S.

The duty on paper made from wood cut from Crown Lands is \$2 more, i.e., total \$5.75 per ton.

I understand the I. P. Co.'s wood in Canada is all on land leased from the Crown.

They will have to have a change made in the tariff when they manufacture their paper in Canada.

W.



—If the advice given in an illustrated booklet on forest protection, issued by the Quebec Government, had been acted on throughout the country this summer, Canada would have been saved a loss of several million dollars suffered from forest fires. This admirable pamphlet is edited by W. C. J. Hall and B. L. O'Hara, Superintendent and Assistant Superintendent of the Bureau of Forestry of the Province of Quebec. It treats of the common causes of forest fires, how to fight a forest fire when started, and what is more important, how to prevent them, and these suggestions are supplemented with condensed instructions to fire-rangers and hints to municipalities on the danger of litigation as well as the dangers of forest fires.

Messrs. Hall and O'Hara have here given a most timely contribution to the important question of forest protection

PULP AND PAPER NEWS

The Rainy River district was last month devastated by forest fires, almost reaching the town limits of Rainy River.

* * *

Reports are to hand, though so far we are unable to confirm them, that the Laurentide Paper Co. will increase the capacity of its plant at Grand Mere.

* * *

The Continental Bag and Paper Co. has been granted a permit for the erection of a two-storey brick factory at Ottawa, at a cost of \$30,000, for the manufacture of paper bags.

* * *

Part of the Miramichi Pulp and Paper Co.'s mill at Chatham, N.B., was last month damaged by fire, which broke out in the machine room. Plans for rebuilding are as yet uncertain.

* * *

J. R. Booth, Ottawa, is making good progress on his barking mill, to be used in connection with the new pulp mill. The two will be connected by underground passages under the mill platform.

* * *

The Scott Lumber and Pulp Mill, at Magaguadavic, Que., was destroyed by fire at considerable loss. Some piled pulp was undamaged. The mill was operated by A. C. Dutton for the Bank of Nova Scotia.

* * *

W. Milne and Sons' saw and pulp mill at Spanish River has been destroyed by fire at a loss of \$30,000. New machinery had just been installed. Incendiarism is suspected. Pulpwood stocked on the premises was saved.

* * *

It was announced at a recent meeting of the Shawinigan Light and Power Co., in Montreal, that the Union Bag and Paper Co. will build a pulp mill at Three

Rivers, electric power to be obtained from the former company.

* * *

The Quebec Government has decided that the prohibition of export of pulp wood will apply also to that from lands held by settlers on ticket.

* * *

The National Paper Mills, Ltd., Vancouver, which proposes to build a large paper mill in that vicinity, expects to obtain most of its required pulp wood from the Fraser River Lumber Co. Charles J. Kay, of Vancouver, is to be manager of the new company.

* * *

R. Marpole, vice-president of the E. and N. Railway, and W. E. Marsh, representing the American Financial and Securities Company, Chicago, have, it is said, made arrangements for the building of a \$750,000 pulp and lumber mill near Crofton, B.C.

* * *

As a result of the disclosures which culminated in the suicide of Frank Gouldthrite, superintendent of stationery for the Dominion Government, the Printing Bureau will be completely reorganized. The positions of superintendent of printing and of printing are both advertised as vacant.

* * *

The men employed by the Lake Megantic Pulp Co., Lake Megantic, Que., struck work last month owing to their demand for a 20 per cent. increase in their wages being refused. The payroll is said to amount to \$15,000 per week, which makes the loss a serious one to that town.

* * *

The London Daily Mail has engaged H. Marshall, of London, Eng., pulp and timber expert, as a special commissioner

to inspect pulp and timber lands in British Columbia. It is expected that a large British syndicate will soon be organized to acquire and develop timber areas in that province.

* * *

Negotiations are still going on from which it is hoped will materialize the development of the great water power at Grand Falls, N.B., together with the projected pulp mills. It is stated that though no transfer has as yet been effected, yet it is almost certain that the interest of the Grand Falls Power Co. will be taken over by the company in which Sir Wm. Van Horne is interested.

* * *

The first raft of pulpwood to be towed from a Canadian port across Lake Superior, comprising about 3,000 cords of spruce pulpwood, reached Ashland, Wis., a few days ago. The pulpwood was cut on Pie Island and back from Thunder and Black Bays, fifty miles or more east of Port Arthur. American capital is behind the move. The value of the raft was about \$20,000 in Canada, and the raft reached Ashland with less than 25 per cent. loss.

* * *

In the case of Charles Smith versus C. Saunders, both of Compton, Que., judgment has been given to plaintiff. He alleged that the defendant had agreed to cut 700 cords of pulp wood, but that he had failed to fulfil his contract, and as a consequence he was out a large sum, made up of extra money which had to be paid for the cutting of the wood, etc. The defendant, on the other hand, pleaded that he had made no arrangements with the plaintiff to saw the wood by a certain date, and that there was no price fixed. He was quite willing to saw the wood, but when he went into the woods to do so the plaintiff told him that he had got another man to do the work. The judge held in substance that the defendant had undertaken to saw the wood, but that at the last moment he had refused to do so without giving any reasonable excuse.

The Swanson Bay Forests, Wood Pulp and Lumber Mills, Ltd., of British Columbia, is inviting the purchase of bonds by the British public. The present issue is for £300,000, of which amount subscriptions at par are invited for £150,000 in £25, £50, and £100 bonds. Subscribers of these £150,000 bonds will be allotted a bonus in fully paid \$5 shares (common stock) at the rate of ten shares per £100 bond upon payment of the final instalment. Sales of pulp have already been made from this mill, some being shipped to Japan. Among the directors are R. M. Cox, Ottawa and Liverpool; C. E. Read, Montreal; T. Mackarell, Ottawa and Montreal; A. R. Reed, of A. E. Reed & Co., Ltd., London. The secretary is Hugh Limbeer, 65 London Wall, London, E.C. The company was formerly known as the Canadian Pacific Sulphite Pulp Co.

* * *

The Beaver Co., of Buffalo, who, as stated in last issue, are going to erect a large branch factory in Canada, have purchased a large site of land in Ottawa, on the G. T. R. siding, in the west end of the city, and the work of building the factory will begin shortly. Part of the machinery has already arrived. The company will employ 150 hands at the start, to be increased as business warrants. The chief product of the new factory will be beaver board, which is coming into general use as a substitute for plaster. It takes the place of lath, plaster and wall paper for walls and ceilings of any type of building, new or remodeled. It is made of pulpwood, after being subjected to high pressure, and is nailed directly to the studding of a new wall or ceiling, or put on an old one without removing the plaster. One of its chief merits is that it deadens sound and keeps out heat or cold.

* * *

The courts have granted an order authorizing E. R. C. Clarkson, official receiver of the Imperial Paper Mills, to take out wood from the concessions of that company. In connection with the suit brought by the Sovereign Bank, who

held an interest in the mills, against W. Parsons, of New York, for \$15,028 and interest for certain goods shipped on commission, a decision has been given to effect that if plaintiffs consent to accept judgment for \$12,113, judgment will be given for that amount, with interest at 5 per cent., from Nov. 7th, 1907, or with costs, if plaintiffs are not content, but desire a reference, it will be referred to the Master in Ordinary to ascertain and determine what amount the defendants are entitled to have deducted. Those deductions are to be as to the price of any of the goods shipped on commission, and such as are proper for freight, insurance, and any other thing connected with the purchase or shipment of these goods, but not to include any account or claim of the defendants by way of damage for delay or alleged breach or breaches of contract. The amount of the deductions so found shall be taken from \$15,754.20, and the plaintiffs will be entitled to judgment for the balance, with interest and costs down to the reference. Deductions shall not be allowed to any greater extent than to reduce plaintiffs' claim to \$12,113.68. Plaintiffs in any event shall be entitled to that sum as an admitted balance. Thirty days' stay was granted.



THE REELING MACHINE AND ITS WORK.

Reeling machines are now constructed so as to reel any size of sheet suitable for printing machines, says T. Hadfield, in Paper Making.

These machines can be run at almost any speed, but about 600 ft. per minute is a reasonable rate, as it gives the reelerman ample time to notice any defects in the paper, such as sops, felt holes, wiremarks, or creases.

The reeling machine consists of the ordinary iron framework with several copper cylinders, by means of which the paper is stretched and given a slightly better finish. At the back of the frame-

work are the fittings for the roll of paper to be reeled.

The paper is reeled at a uniform speed, and is steadily unwound by means of a brake, and for a hard, tight reel of paper the brake should be fairly tight and well weighted. The steel pulley upon which the brake is attached should be kept free from grease, or anything of a sticky nature; if this is not attended to the paper will keep snapping off.

In the centre of the reeling machine are a set of slitters or knives to cut the paper the desired width. Just before the paper passes through the slitters a well-fitting doctor is fixed, which levels the paper and causes the edges of the paper to be clean cut. After the paper is cut it passes over the damping roller, by means of which it is slightly damped ready for the printing office. Only orders specified are damped in this manner, as it means that the paper contains a varied percentage of moisture, which considerably increases the weight of the paper.

From the damping roller the paper passes over the clock-roller, by means of which every yard of paper reeled on the drum is registered. The clock is known as Harding's Counter, and any reel of paper from 100 yards upwards can be accurately registered.

The paper is reeled on a steel bar on which is fixed a cardboard shell the exact width of the paper. The bar is fitted into brasses, one on either arm. The arms are raised so as to bring the bar in contact with the drum, and the bar moves in the opposite direction to the drum when the paper is being reeled. Under the reeling machine is a large hole for the edges and any waste paper to drop in; this is ultimately taken to the potcher or the breaking engine.

The reeling machine plays an important part in showing up an imperfect paper. If the paper is made from wood, straw, etc., which has not been thoroughly treated in its preparation into

half-stuff, shives find their way into the finished paper, as they are too fine for the strainer to keep back; and so the paper is constantly breaking, more particularly if the shives are near the edges of the paper. The same occurrence takes place if there are any felt or wire marks near the edges of the paper. A wire which has been run for a short time, if not kept fairly tight, will show on the paper an almost transparent line the whole width of the paper where the seam has touched, and this is the cause of many breaks on the paper machine, more particularly when reeling, as the tension is fairly strong.

When the paper is creasing on the reeling machine, weights are put on the opposite arm. This creasing is generally due to "hard" and "soft" edges, caused by irregular pressure at the calenders or at the press; and in some cases the cause is due to the uneven flow of pulp on the wire. The machine-man soon finds this out by weighing a sheet of paper from both sides of the reel. There would be a great advantage if all the paper was slightly damped when passing through the reeling machine as it obviates much dust from getting in the reel of paper, which would ultimately cause trouble at the printing office.

A good reelerman can save many breaks and much "broke" by judicious regulation of the copper reeler nearest the slitters. This roller can be pushed in or drawn out at either side, which is done to regulate any irregularities in the roll of paper as it comes from the machine, and especially when the cause is hard and soft edges.

There is no difficulty in running a reeling machine providing the roll of paper is even in hardness as it comes from the machine; but it requires a great deal of tact and experience to reel paper which has not been evenly pressed. A good man should be able to pick out all the defects in the paper, as the paper which is reeled should be perfect.

CONSUMPTION OF SULPHUR IN SULPHITE MILLS.

In "Der Papierfabrikant," No. 14, this year, are given some data regarding the consumption of sulphur in sulphite mills. Somebody had sent in a question, asking if it was possible to cook sulphite with 7 per cent. of sulphur. The technical editor says in his answer, that 10.5 per cent. is the normal, and that he does not know of any mill using only 7 per cent. We agree with him as to the first part of his answer, but wish to mention, that it is quite possible to make good sulphite with 8 per cent. (See the article in this number, "How I Made Sulphite Pulp with 8 Per Cent. Sulphur," by C. E. Bandelin).

We know very well, that there are mills in this country using any amount of sulphur, up to 24 per cent., which is due partly to impurities in the sulphur, raw wood, etc., but mainly to the fact, that the chemical side of the industry is not given due attention.



WAYS OF DETERMINING STRENGTH.

It is a well known fact that in machine made papers the strength is nearly always greater in the machine direction than across the machine. In the Papier Zeitung, Professor Herzberg states that for the majority of papers the ratio of the strength in the weaker direction to that in the stronger direction ranges from 60: 100 to 75: 100. Nevertheless, cases are by no means infrequent in which this ratio is as low as 33: 100 or as high as 99: 100.

Recently Professor Herzberg had occasion to test several samples of manila papers, in which he found that the paper in the machine direction was five times stronger than in the cross direction, the values for the ratios being in some samples as low as 18: 100. These exceptional relationships were likewise reflected in the tensile stretch of the

paper in two directions, the stretch in the cross direction being more than four times greater than in the machine direction. The differences in the resistance to folding and creasing in the two directions were even more striking, the ratios of the weaker to the stronger directions of the sheets ranging from 8:100 down to 1.5:100.

Professor Herzberg uses this observation as an argument in favor of valuing the strength of papers according to their minimum values, instead of according to the average values of the two directions of the sheet, as is the custom at the present time. He takes the view that a paper showing tensile breaking lengths of 6,000 and 4,000 metres in the two directions, respectively, is obviously far superior from the point of view of strength than a paper showing 8,000 and 2,000 metres, although the average strength of the two papers is the same, namely, 5,000 metres.

In a later number of the *Papier Zeitung*, a correspondent takes exception to Professor Herzberg's conclusions, particularly as applied to manila papers. He points out that, even in the case of ordinary papers, the application of the proposal supported by Herzberg, as to judging papers according to their minimum strength, would be very difficult. It is easy to prepare a wood pulp paper showing an average breaking length of 5,000 metres, and the values in the two directions might easily be 6,000 and 4,000 metres, respectively. But such a paper would be of very different character from a manila paper of the same average strength, and for many purposes would be a totally insufficient substitute. The strength of the wood pulp paper depends on suitable milling and good felting, and it would be very difficult, even if it were desired, to make this paper showing values of 8,000 and 2,000 metres in the respective directions of the sheet. On the other hand, the strength of manila papers depends on their very long, strong fibres, which in most cases are beaten very free in order to

obtain the great pliability for which manila papers are renowned. If Professor Herzberg's proposal were to be enforced in the case of manila papers, it would be necessary to beat the fibres to a much shorter length, and the special characters of the paper would be quite lost. Moreover, manila papers are very largely used for wrapping cables, and great strength, pliability and toughness are required in the machine direction only; the specifications in this respect are so exacting that the paper maker could not possibly afford to reduce the strength in the machine direction in order to increase that of the cross direction. Lastly, many customers know nothing of "breaking length" and judge the strength of a paper only by its tear. Given two papers made of the same material they will generally prefer the one with the longer fibres, even if the other, by longer milling and better felting, possesses a higher average breaking length.



PAPER MAKERS' DIRECTORY OF ALL NATIONS.

The edition of this useful book of reference for 1910 is now to hand and will be seen to be re-arranged and improved in several respects. As our readers know, the book is of such an international character as to be especially useful in bringing into touch with one another all sections of the paper trade in different parts of the world. Detailed particulars are given of between 4,000 and 5,000 paper, pulp and board mills scattered throughout various countries, including data as to names, addresses, makers of paper, number and width of machines, tonnage, output, power used, telegraphic addresses, agents, etc. There is also a classified index to commercial prospectuses, forming a buyers' guide of representative names in the paper and allied trades. The book is cloth-bound, of 760 pp., and published by Dean & Son, Ltd., 160a Fleet St., London, E.C. Price, 10s. 6d. net.

SOME NOTES ON THE UTILIZATION OF PEAT-MOSSES

Condensed from "Svensk Papperstidning," for Pulp and Paper Magazine.

The "Swedish Association for the Cultivation of Moss-lands" recently received a postal card of brown color on which was printed "Irish Peat Post Card, manufactured in Ireland," together with an explanation that it was "peat paper." It was not stated where the card-board had been made, but as it looked somewhat mysterious it was examined microscopically.

No parts of peat fibres could be detected and the paper seemed to consist nearly exclusively of cotton fibres. The card was given to a specialist, who stated after testing, that it was made from rags and very weak.

The "Svensk Papperstidning" has also received such a card called "Bog-Moss Post Card," and probably coming from the experimental mill at Celbridge, where "Callenders Paper Mfg. Co.," founded in 1903, experimented without success to make paper from peat.

An agent for the intended Anglo-Swedish Company for the manufacturing of peat-board in the province of Småland, Sweden, has recently shown to the editor of the Svensk Papperstidning some samples said to be made from peat. One of these samples was tested at the Polytechnical Institute in Stockholm with the following results:

45 per cent. wood fibres, looking like brown mechanical pulp.

35 per cent. chemical wood pulp fibres, more or less completely boiled.

5 per cent. cotton.

15 per cent. fibres, looking like peat fibres.

Part of the 45 per cent. which looked like brown mechanical pulp may come from more or less decayed wood residues, which could have been contained in the peat. The sample could in any case not be called card-board of only peat.

Long stories have been printed in the daily press in Europe of late about the immense values slumbering in the peat-

mosses, and lately it has been described how sulphate of ammonium is being made in a new factory in Ireland. The "calculation" shows the following results: "5 tons of sulphate of ammonium are obtained from 100 tons dry peat. The manufacturing expenses are at present calculated to about \$26 per ton, but it is expected they will be reduced to about \$18.50, when suitable machinery has been put in. This ought to be a very paying proposition as the selling price for sulphate of ammonia is about \$58 per ton, especially as the by-products, paraffin, acetic acid, acetone, etc., also are quite valuable."

This seems indeed to be a profitable scheme, especially as the gain should be increased by the by-products, but the calculation does not stand the slightest criticism. Even if the peat-moss can be used with a percentage of water of up to 70 per cent., which seems to be the case, it has still some value, which hardly can be less than \$1.35 per ton. The cost for peat-moss will then be \$135, corresponding to \$27 per ton sulphate. To this are then to be added the costs of manufacturing, etc.

The same author next speaks about the immortal "manufacturing of paper from peat-mosses." After having mentioned several unsuccessful attempts in Ireland, it is stated that the invention now has been "perfected" in America. One paper is mentioned, "World To-Day," as having written that a paper mill for the manufacturing of paper from peat has been built at the big Capan* peat-mosses in Michigan.

"The machinery is mounted in a shed about 1,000 feet long. At one end the peat, coming from the mosses, is filled into carts and transported to the machines, and a couple of hours later it leaves the building at the other end as paper, dried, packed and ready to be loaded into the railroad cars. The dryer, an immense machine, effects the drying in 20 minutes. The paper, thus made, is colored brown, and only useful for wrapping purposes, but is regarded to be better than wood pulp paper as such. The percentage of oil present in the peat

is said to make it waterproof, and woolen clothes and furs wrapped in such paper are said to be safeguarded from insects. As yet there are no data at hand regarding the strength of the peat paper, (this we are fully willing to believe.—Ed.). It is, however, cheaper than wood pulp paper, which is said to cost \$5 to \$6 per ton,** while the peat paper costs only a little more than \$2 per ton.**"

This means paper for 1-10c. per lb., either with or without the value of the peat included. The impossibility is too striking to need any special proofs. Only the drying of peat paper, which is very difficult to dry, requires about 1-10c. per lb. The price given of the manufacturing costs for wood pulp paper in America is also completely wrong.

Finally, it has been stated that it may not be impossible to get white peat paper.

It is easy to guess the intention of such a notice. Readers of a paper like this may laugh at it, but there are capitalists for which the absurd has more temptation than participation in sound industry.



CANADIAN PAPER IN AUSTRALIA.

Imports of paper into Australia from Canada have increased in volume, and are nearly double those of 1906. This increase is very largely due to printing paper. Of the £264,112 of paper imported, nearly £92,000 came from Canada, which was more than double the amount imported in 1907. Canada is doing a large share of the trade of paper in cylinders for power presses, but has not done very much as yet in flat papers. Its share of trade should be very considerably larger next year than in 1908 or 1909. It illustrates what can be done with the right material, right business methods and first-class representation.

MANUFACTURE OF "KRAFT" PAPER IN SWEDEN

Dr. Emil Heuser contributes an article to the *Papier Zeitung* on the manufacture of Swedish "Kraft" papers. The Swedish mills use a cheap but suitable species of spruce wood known by the name of "gran," which yields tough but at the same time soft and pliable fibres. In Germany the Swedish wood is employed as well as native varieties of spruce and pine. The process is essentially the ordinary sulphate-soda process of wood digestion, special attention, however, being paid to the strength and composition of the lyes and the time and pressure of the cooking. With a view to the economical recovery of the soda, strong lyes are employed having a density of about 12° Beaumé at a temperature of 50°C. On this account the time and pressure of the digestion process must be restricted in order to avoid making too soft and weak a pulp. The composition of the lye and conditions of boiling are best ascertained by experiment for each type of wood. The strength of subsequent lyes is then adjusted by titrations and analyses in order to avoid irregularities in the product. Estimations of total alkali and degree of causticity are made for each batch. The complete analysis of a liquor employed for boiling "Kraft" cellulose gave the following results per litre of lye; sodium carbonate, 7.48 grammes; caustic soda, 61.80 grammes; sodium sulphide, 25.12 grammes; sodium sulphite, 3.78 grammes; and sodium sulphate, 4.52 grammes. Particular stress is laid on the presence of a high proportion of sodium sulphide, since this alkali is credited with the property of preserving the softness and pliability of the fibres. A certain proportion of a used black lye is frequently mixed with the fresh lye in order to increase the brown color of the pulp. This has the disadvantage of weakening the cooking-lye, and consequently many mills prefer to color the pulp in the beaters. The wood is cooked under a pressure of eight atmospheres (about 116 lbs.

* Capac? ** Sic!

per square inch), which pressure is maintained for about two hours. The product is washed for a shorter time and with less water than in the case of ordinary wood pulp, and is then kollerganged before it passes to the beating engines. In the beaters a certain amount of the brown used cooking-lye is added for coloring purposes, about 40 litres being used for 3 cwts. of pulp. Sulphuric acid is then added to partially neutralize the alkalinity of the brown lye, care being taken not to use sufficient to make the contents of the beater acid. Then about 1 per cent. of rosin size is put in and the whole is then made acid with sulphate of alumina. In this way the brown coloring matters of the lye are precipitated and fixed on the fibres, and the resinous matters dissolved in it are utilized as sizing agents. Beating is carried out in such a manner as to give a "wet-beaten," but still a very long-fibred pulp. Difficulties have been experienced in Germany in running "kraft" papers on the machine. This is because it is attempted in that country to make "kraft" papers on the automatic take-off principle with a top felt. A sufficiently "wet-beaten" stuff does not adhere well to the top felt and the paper thus gets creased. A new top felt frequently fails altogether to take the paper off the wire; in other cases air blisters are formed which cannot get away owing to the closeness of the paper. On the other hand, the manufacture of "kraft" papers on the ordinary Fourdrinier machine presents no particular difficulties.



MECHANICAL PULP IN FINLAND.

The preliminary processes are the same for mechanical pulp as for chemical pulp. The first distinguishing variation in procedure commences with the actual grinding of the wood. The grinding machines in a representative installation—variations in the plant employed existing in many mills—consist of large grindstones, usually about 54 in. in diameter by 27 in. in thickness. In each

case the grindstone revolves, either vertically or horizontally, according to the class of machine employed, at a high rate of speed, inside a casing, which is supplied with a number of pockets or receptacles.

In practice the short lengths of pulpwood are pressed end-on to the grinders by hydraulic power, the pieces of wood being thrown at regular intervals into the pockets already mentioned. This grinding is rapidly accomplished, owing to the high speed at which the grindstone ordinarily rotates, and the wood is soon reduced to a fine powder. As a stream of cold water is continually playing upon the surface of the grindstone, the ground wood is washed away as quickly as it is produced into a tank below the machine. From the range of tanks under the machines the pulpy mixture is run off into the vats.

The character of the pulp varies a good deal, according to the conditions under which it is produced. If, for example, the surface of the grindstone is smooth, the grinding of the wood is much slower than if the surface of the stone had been previously grooved or dressed, very much after the principle of flour-mill grindstones, by a special tool used for this purpose, in which case the fibres of the wood are ruptured and detached easily. In the first case, the resulting power is much finer than in the latter case, when it is more apt to be coarse, and to contain many chips. The output of product is correspondingly much greater when the stone has been roughened and when the blocks of wood are applied to the surface of the grinder under considerable pressure. Moreover, if the volume of water employed is limited in quantity the wood has longer contact with the stone, and the temperature of the mass in the pockets is increased. The product in such a case is stronger and tougher in texture than when the powder is washed away as fast as it is produced, such a product being known as hot-ground pulp in the first case and cold-ground in the second.

From the vats into which the pulposus mixture passes when it leaves the grinding machines it passes to the screening machinery, which takes various forms, sometimes being horizontal and of flat build, and sometimes centrifugal. The function of the screens is, under any circumstances, as in the case of the screening of chemical pulp, to remove chippy and knotty portions, and the coarser unsoftened fibres, so that a uniform material may result. Generally speaking, the screening arrangements for mechanical pulp are on the same lines as those provided where chemical pulp is produced. In any case, as the pulp leaves the screens, it contains such a large admixture of water that it is necessary that the fibres should be concentrated, and this is accomplished by means of a wet-press, which, again, is identical with the type of machine used in the manipulation of chemical pulp, the result of the process being that the powdered pulp is transformed into sheets

These sheets are next taken from the wet-press machine, folded into a convenient shape and built up in piles, coarse sacking being placed between the sheets. These piles are then brought under hydraulic pressure, removing much of the remaining moisture, which gradually drains away through the sacking. When this has been done the thick blanket-looking sheets of folded pulp contain only about 50 per cent. of moisture, and are known as "dry" wood pulp. The sheets are then put up in bales, usually ranging in weight from 2 cwt. to 4 cwt., and are ready for the pulp store or for shipment.

The pulp, whether mechanical or chemical, is now ready for use as raw material for paper making. Some pulp-making establishments in Finland manufacture mechanical and chemical pulps solely; some mechanical only, others chemical only; while, again, other undertakings engage also in paper making, and some on a large scale.

DECKLE STRAPS

Waste may be caused by any part of paper-making machinery, says the Papierfabrikant. Deckle straps are often responsible for tearing the wet or unlevel drying, and much subsequent sorting is required. Rough and cracked rubber edges impart a similar character to the edge of the web, which is therefore very liable to be torn afterwards under the tension of the couch rolls and the drying cylinders. It is an expensive job to be continually putting in new rubber, especially at the moment of wringing. Hot ironing, now extensively adopted for mending motor-car tyres, enables us to repair our rubber so long as it is not too hard and brittle. Once the rubber has entirely perished it must be replaced. No other remedy is possible.

Roughness of the strap edges causes waste also by tearing off bits from the edges of the web. These scraps may be lost altogether, or, what is worse, they may find their way to other parts of the web, and cause lumps and other kinds of unevenness. It is practically safe to refer the occurrence of lumps near the edges of the finished paper to the just described evil action of the deckle straps. They must, of course, be cut out, which entails considerable loss of paper. These lumps have a further disadvantageous action. They protect the web in their immediate neighborhood from the pressure of the hot-drying cylinders, so that the paper comes out imperfectly dried. The result is that it often tears in calendering, as damp places in paper are notoriously much weaker than dry paper. In any case they make the calendering uneven, and the situation of the lumps is plainly visible after the operation.

If it is inconvenient for the time being—if, for example, the difficulty is noticed while the machine cannot well be stopped to repair or replace the rough edges—much may be done by fixing a brush over the deckle edge and a long trough under it. The brush sweeps the detached scraps off the deckle strap into the trough. This prevents them from getting

into the web, and also saves them from going into the floor, and collects them for further use in fresh quantities of pulp.

An even better plan, but one more expensive in the adoption, is to arrange a number of very fine water jets to play on the strap edge, whereby the scraps are rinsed into the trough instead of being brushed into it. The water also washes the stuff out of the trough into a vessel placed for its reception, so that the trough rarely wants cleaning out. The great drawback of brushes is that they require frequent removal for cleaning, otherwise their bristles become so clogged with paper fibre that they cannot fulfil their functions.

Another cause of waste through deckle straps occurs when the forming carriage is set too low, whereby they are made to press too heavily on the wire. Then, however good the state of the straps may be, the wire is pressed out of its proper perfectly horizontal position, with the inevitable result that the web shows variations in thickness. Yet another cause of difficulty with deckle straps consists

in their running at a different speed from the wire. This causes powerful friction between the web edge and the strap, and leads to the same result—the proximate cause, viz., undue friction, being the same—as rough deckle edges. If we have those edges rough when the speeds of the deckle strap and wire are different, the result is absolutely disastrous. This difference in speed has the further result that the friction between the wire and the strap tends to roughen the latter and to wear out the former. This difference in speed is, then, probably one of the chief points to be avoided in running a paper machine.—Paper Mill.



COLOR OF PAPERS IN THE "LOOK-THROUGH."

According to an Article in the *Wochenblatt für Papierfabrikation*, paper makers frequently receive complaints from their customers on account of a lack of brightness in the "look-



TENDERS FOR PULPWOOD CONCESSION

Tenders will be received by the undersigned up to and including the 7th day of October next for the right to cut the pulpwood on a certain area tributary to the Nepigon River in the District of Thunder Bay. Tenderers should state the amount they are prepared to pay as bonus in addition to such dues as may be fixed from time to time for the right to operate a pulp and paper industry on the territory. Successful tenderers will be required to erect a mill or mills on the territory, and to manufacture therein the wood into paper.

Tenderers will be required to deposit with their tender a marked cheque payable to the Treasurer of Ontario for twenty-five per cent. of their tender, to be forfeited in the event of their not entering into agreement to carry out conditions, etc.

The highest or any tender not necessarily accepted. For particulars as to description of territory, capital required to be invested, etc., apply to the undersigned.

F. COCHRANE,

Toronto, 8th July, 1910.

Minister of Lands, Forests and Mines.

No unauthorized publication of this notice will be paid for.

through." This dullness in color suggests the use of inferior or under-bleached materials which have required a large amount of blue to give them an appearance of whiteness. This view may often be false, but nevertheless the suspicion remains.

A dull "look-through" in combination with a fine white surface color may be due to a number of other causes. For instance, if the color of the broke or shavings used in the stuff intended for papers be with a pink or yellowish tone of white, although the desired surface tint might easily be matched. Again, for economy's sake, the raw material may not be fully bleached, in which case also it is impossible to obtain a bright "look-through." A very frequent cause of dullness in the "look-through" is the mineral loading, particularly china clay, which is seldom pure white in color.

The writer further quotes an instance in which the by-products of the bleaching process were responsible for the poor color of the paper. The process used was the **electrolytic process**, and the bleached pulp was not washed, but merely drained. The freshly bleached pulp looked perfectly bright and white, but gave paper with a very dull yellowish "look-through." It was ascertained that the liquid squeezed out of the freshly bleached pulp was yellowish in color, and that this yellow liquid remaining in the pressed pulp was the cause of the trouble. Subsequently, when care was taken to wash out the bleach liquor, the paper came through perfectly bright.

Unscientific tinting of the pulp is also a frequent cause of a dull "look-through." Sometimes too much of a certain color is added, and it is necessary to add an antagonistic color to neutralize it. Also, in a mixture of colors, the surface frequently shows one tint and the "look-through" quite another tint; it is therefore important not only to choose colors of bright shades, but also to avoid using too many colors in a single paper

PULP AND PAPER MARKETS.

Toronto, Aug. 6, 1910.

During the last few days the anticipated increase in demand for ground wood pulp has not only materialized, but the mills have been almost swamped with enquiries. Some of the mills are already completely sold out. As a consequence prices are rising, and while \$16 to \$18 at the mill seems to be the official quotation, it is **almost impossible** to get stocks at any such price. Some mills have considerable piled, but these stocks are being depleted. In fact the mills refuse to quote at all except for hand-to-mouth shipments. The change in the tone of the market is due primarily to the excessively low water both in the Eastern and Western States, and it is from all quarters that the demand for pulp comes. Water on the Ottawa River is also very low, while in sections of the Eastern States the precipitation is said to have been smaller by 60% than last year, which was also an extremely dry season. Sulphite, especially unbleached, is in very good demand at \$42 to \$44 per ton. Bleached is quoted at \$48 to \$52.

The paper trade is busy, though considerably interfered with by the G. T. R. strike, now happily at an end. Manufacturers seem indisposed to make contracts for any but short periods. The prevailing idea is that news print is likely to go higher. Short term orders are being placed around \$2.30 or \$2.50 in sheets. There is little or no improvement in wrapping papers, though Kraft seems to hold its own fairly well.

* * *

Montreal, Aug. 6, 1910.

There is an exceptionally heavy demand for mechanical pulp from the United States, both east and west. Many believe the price will reach \$30 before very long. It is now about \$24, delivered in New York. A good many buyers from across the line are to be seen in this market. The paper trade continues in excellent condition and mills report themselves as a rule exceptionally busy.

The Pulp ^{AND} Paper Magazine of Canada

Vol. 8.—No. 9.

TORONTO, SEPT., 1910

(Canada \$1 a Year
Single Copy 10c.)

Pulp and Paper Magazine

A monthly magazine devoted to the interests of Canadian pulp and paper manufacturers and the paper trade.

Subscriptions: Canada and British Empire, \$1.00 per year. United States and Foreign, on account of postage \$1.50 per year.

The Pulp and Paper Magazine is published on the second Tuesday of each month. Changes of advertisements should be in the publishers' hands not later than the 1st of the month, and, where proofs are required four days earlier. Cuts should be sent by mail, not by express.

BIGGAR-WILSON, Ltd.

PUBLISHERS.

**Offices, Confederation Life Building,
Toronto, Canada.**

THE CANADIAN TARIFF.

The public addresses given to Sir Wilfrid Laurier, in his tour through the Western prairie regions, in which the Grain Growers' Associations and other local bodies demand free trade, have revived discussion of the tariff. Many good people in the Old Country, both tariff reformers and free traders, have interpreted the Premier's replies to these addresses to portend an economic earthquake in Canada at the next session of Parliament. That kind of indication is as uncertain as the Indian signs of a hard or mild winter. Protectionists need not be much depressed, nor the devotees of "free trade, as they have it in England," over elated, at the cryptic replies

of Sir Wilfrid Laurier. Sir Wilfrid is not now and never has been a propagandist; but he is a trained administrator, and knows how to strike a balance between the interests of the West and the interests of the East. Onlookers will find that there is still a capital E in the Canadian East as well as a Capital W in the Canadian West.

But, suppose the manufacturers and working men of Canada were to yield without resistance to this clamor of the men who are interested only in the growing of wheat and have little or no consideration for the interests of the various manufacturers, merchants, farmers, and others of the East whose capital built up the West, what have they to offer to replace the customs duties as a means of raising the revenues of the country? Out of about \$100,000,000 of cash revenue raised last year in Canada, \$60,000,000 was raised by customs dues. Have these grain farmers come forward with a specific offer to raise this \$60,000,000 by direct taxes upon themselves in case the customs houses are abolished? They have not remotely suggested it; nor has any responsible political party in Canada seriously proposed such a step.

Apart from the problem of developing home industries in a comparatively young country, direct taxation would be a better method of raising money to run

a government, as it would make for economy and greater honesty in administration, but until there is an enthusiastic demand from East and West, from farmers and manufacturers, commercial men and laborers, miners and fishermen, for this method of raising the three-fifths of the money now collected through the customs, the talk of free trade counts for as much as the decisions of a school boys' debating club.

Even tariff reduction of any great degree is scarcely more probable, for we know from our past history, that the expenses of Government are steadily increasing and not diminishing, and tariff reduction that will either decrease this revenue or jeopardize the nascent industries of the country would neither suit the purposes of the party in power nor be permitted by the majority of the people, who are the Government's masters.



THE EXPORT OF QUEBEC PULP- WOOD.

The views of the Quebec Limit Holders' Association will always command the attention of the public as well as the government of that province, and the list of recommendations published in our July issue will be read with interest by pulp and paper manufacturers. In the fourth paragraph of these recommendations it is stated that the output of forest products from "located" lands in Quebec has increased so much in the last ten years that it is now equal to that from limit holders' lands. This, the association points out, is largely due to the abuse of the homestead laws by so-

called settlers, who go on the land and abandon it after skinning it of pulpwood and other timber. If the government strictly collected dues from such lands it would increase the revenue which it now exacts from the limit holders, and the association complains that this is not only inequitable in itself, but is unfair to the limit holders, for the reason that their profits have decreased during the past ten years.

This point is brought out more clearly by a correspondent of the Pulp and Paper Magazine writing in the same issue on the "Prohibition of pulpwood export from Quebec crown lands," who asserts that at a conservative estimate, there are 2,000,000 acres of forest lands on the Seigniories in Quebec, and 3,000,000 acres of patented and "located" lands from which wood is taken without restriction as to export and without dues to the government. Taking the average of wood on these lands at ten cords per acre, this would give about 50,000,000 cords of pulpwood, which could be exported without let or hindrance. If only half of this wood were exported as pulpwood, it would be sufficient to maintain the export at a million cords a year (the largest reported in any one year) for a quarter of a century to come. Our correspondent adds that no account is here taken of the lands granted for railway subsidies, the position of which is by no means clear, under the legislation passed at the last session of the legislature.

These facts show in a high light the carelessness and wastefulness—not to raise the question of patriotism—of past administrations in dealing with the most vital asset of the province. The lands

granted under the settlement laws in the past, without conditions to conserve the timber or without enforcing even the requirements provided in the law, cannot easily be dealt with now, but the present government has this year put into the homestead Act the condition that wood cut from lands located for settlement shall not be exported. This is a very important and courageous act, and is the first bona fide and effective step to conserve the timber of the province for the people of the province. If it is honestly and impartially enforced it will do much to ensure the early up-building of the pulp and paper, and allied industries of Quebec.

This brings us to the consideration of another point in the report of the Limit Holders' Association, and that is the objection that in parts of the province where ordinary lumbering is difficult, such as in Gaspé, the limit holders will be shut up to one of two alternatives—to cut or not to cut at all, and if cutting is done, to the great expense of building pulp and paper mills to utilize the wood. It should be clear to all interests that this is the very purpose of the prohibition of the export of the raw wood. While the past conditions have ruled, the industrial population of rural Quebec have been literally hewers of wood and drawers of water for the great industries of the United States. Already new projects involving large expenditure of capital and the creation of home industries have taken shape as the result of the new law, and more will come in due time to increase the home market for Quebec farm products, to create new towns and villages with their commerce

and traffic, and to enlarge the returns of capital. This will ultimately be the gain of the limit holders, for the time will surely come when the very remnants of lands in their control will be worth more than the entire present limits, extensive as these are.

The Provincial Government should take care that the temptation to be on the popular side and cater to the multitude of votes does not lead them to do injustice to the rightfully acquired interests of the limit holders of the Province who have, in default of proper regulations in the past, been the best regulators and conservators of Quebec's timber regions. On the other hand, the limit holders have to make up their minds that the economic waste of unrestricted export must cease, and if capital cannot be found at home for mills there will be no serious difficulty in getting it from outside, as has been done in other industries. As a matter of fact, both American, British and European capital is being offered, and will hereafter be forthcoming in greater volume, to exploit the pulp and paper industries of Canada and Newfoundland, and the reason why Quebec has not, in the past, attracted to it the full proportion of capital which its natural situation would have ensured is that the irresolution of past administrations has failed to give these industries the required assurance of permanence. Newfoundland and Ontario have set an example which Quebec, New Brunswick, and other provinces can follow with profit. The timber limit holders of Quebec have only to fall in with the new conditions and encourage the influx of capital to get their share.

**CANADA'S MISSION IN THE
"FEDERATION OF THE
WORLD."**

Thanks to a good Providence that has guided them in times of threatened rupture, peace has been maintained between Great Britain and the United States for a hundred years, and in the closing years of this century of mutual goodwill these nations have given new proof of their desire to perpetuate the peace by referring a century-old dispute—the Newfoundland fisheries difficulty—to arbitration by The Hague tribunal. These are among the first great nations to yield to this new international court the arbitrament of a grave and ancient controversy.

In the last conflict between Great Britain and the United States the carnage ground was Canada—a country in no way responsible for the trouble, but vicariously suffering the woes of a three years' war, which terminated without settling the cause of dispute, or even mentioning it in the treaty of peace. It was a war which, in its origin and ending, and in the miseries it inflicted on an innocent people, illustrated to the world the futility of wholesale butchery as a means of settling questions of equity or moral principles. It had its individual heroes, but as a war it has been regarded, from both sides, with shame and regret by the generations who have followed. This feeling of wholesome repentance is expressed in the sincere attempt to find new grounds on which the two nations may co-operate, and in seeking to win and to deserve each other's respect and good-will.

It is proposed to commemorate the signing on Christmas Eve, 1814, of the

peace that has been kept for a hundred years between the United States and Great Britain by such memorials as will help to prolong this peace through the ages and become a sign and example to all nations. Canadians are responding warmly to the advances made across the border, and the brightest minds of both countries realize that, taking this supreme occasion by the hand, it is possible to start the world on a new path whereby good-will and reason may be enthroned in the place of force as the arbiter of national disputes.

Cessation from war among the great nations does not mean that the world shall relapse into idle luxury or political or social stagnation, but that national energies shall be directed to turning the material resources of the earth into the service of all, and especially of the millions to whom life now brings little but misery, and that the thoughts of men shall be devoted to the reconstruction and not the destruction of national life.

The influences that are tending to this reconstruction of society are rapidly accumulating. The staggering burden of the armaments now maintained by the leading nations; the inevitable increase of this load by new inventions, which are constantly altering its conditions and adding to its cost; the undue pressure of this burden upon that part of the community least able to bear it; the growing willingness of the leaders of great nations to substitute some code of international law for the unrestrained will of any one nation, however powerful; the growing tendency when men meet in conventions and assemblies to expand these meetings from local or national ones into international ones, and to deal

with subjects from the standpoint of their effect on the world and not merely upon the nation—these are among the influences that are leading all races to understand that they have more to gain by co-operation than by antagonism.

Within the last five years these various influences have led to the formation of peace societies, arbitration leagues, international clubs, international scientific and other organizations, more or less world-embracing in their aims. As nations derive most of their antipathies from the ignorance due the separation, such movements as these will disarm suspicions and let in wholesome light.

The interest taken throughout the United States in the question of the world's peace, and especially the question of peaceful relations with the Anglo-Saxon peoples, is remarkable. During the last few years peace societies and arbitration leagues have been formed in various States, and much literature has been circulated and educational addresses given on the subject. In June last a resolution was adopted by Congress creating a Commission of five to advise upon the limitation of armaments and the turning of the navies of the world into an international force for the preservation of the world's peace. Other organizations have been formed for the specific purpose of celebrating the centenary of Anglo-Saxon-American peace.

This happy result is in part a natural response to the friendship for the American people constantly shown by Queen Victoria and King Edward—a friendship which may well be said to be the keynote of the foreign policy of those great monarchs, and which we may be sure will

consistently be maintained by King George. Canada, above all parts of the Empire, must now appreciate the immense service rendered to our race by these far-seeing rulers, whose regard for the American nation has been rewarded with such reciprocity of good-will and esteem. The true Imperialism of our Empire, which places its power at the service of the whole world, must have the active sympathy and participation of the United States. Hence, Canada's high mission is to promote this "federation of the world" by extending the hand of welcome to both the mother and daughter nations to hasten their destined reconciliation.



—One of the charges made in connection with the recent frauds in the Government stationery department at Ottawa was that in the supply of paper, certain standard qualities were substituted by cheaper grades, these supplies being largely furnished by United States firms who were said to be in league with the chief of the stationery branch in this fraud. The investigation by Hon. Chas. Murphy, Secretary of State, in whose charge the stationery branch is, led to the sudden disappearance and subsequent suicide of the chief of stationery. It is curious that one of the frauds was connected with the stationery article that was introduced to prevent fraud in all the departments. As the result of the Martineau defalcations a few years ago, an order was passed that all Government cheques should be printed on a special safety paper. This paper was bought from a certain New York firm for a time. Then the order was subsequently transferred to another New York firm. It has

been discovered that this latter firm had been supplying a fictitious safety paper worth very considerably less than the amount for which the Government stationer had been authorizing payment. The stationery branch handled several hundred thousands of dollars' worth of paper and other supplies, and a large percentage of the total amount spent was diverted into the pockets of these conspirators. The Hon. Mr. Murphy has manfully faced the risks of obloquy involved in these exposures, but now they are undertaken, we may expect to see more Canadian-made paper and supplies furnished, and honest value given to the service hereafter.



JOSEPH H. WALLACE & COMPANY.

The organization of Joseph H. Wallace & Company, New York, well known in engineering and paper trade circles through the pulp, paper and power plants designed by them during the past ten years, and through their recent publication, "Pulp, Paper, Power," containing description of some representative constructions, have recently increased their organization by the addition of two engineers who are well known in Europe through their achievements in special lines of paper mill work.

During the past five years, Mr. Wallace has spent a great deal of time and study in Europe, observing methods in European mills, and has become convinced that with respect to economies of operation and quality of production, the European mills are far ahead of American mills. In the manufacture of chemical pulp their superiority has been most evident.

In order to give their clients the best possible service in every branch of their work, and to give them the benefit of modern European as well as American

practice, they have engaged the services of Mr. Adolphe W. Waern, formerly of Sweden, whose reputation is based upon his knowledge and experience in the design, equipment, and operation of sulphate and kraft paper mills; and Mr. Magnus Hanson, of Stockholm, Sweden, the leading sulphite mill engineer and expert in Europe. Mr. Hanson's work includes fifteen of the best constructed mills in Norway, Sweden, and Finland for the production of sulphite pulp.

The mills built by Mr. Hanson have produced the very highest grade of sulphite and with lower cost than any mills in America particularly with respect to saving in wood used per ton of pulp and of sulphur. The average American mills use $\frac{1}{2}$ to $\frac{3}{4}$ cords more per ton of pulp than is required in the Scandinavian mills. Swedish mills produce on an average of from 190 to 200 lbs. of sulphur per ton of pulp (2,240 lbs.), while few American mills claim to manufacture at less than 240 lbs. to 260 lbs. of sulphur per ton (2,000 lbs.) of pulp, and it is probably a fact that the average condition of American practice is fully 300 lbs. per ton of 2,000 lbs.

Joseph H. Wallace & Company took up the matter of sulphate mills some four years ago, associating with Carl P. Carlson, of Sweden, the well-known sulphate expert and specialist in sulphate machinery.

The organization established a London office about five years ago, to look after its European engineering business, as well as to keep in touch with new European ideas in mill arrangement, equipment, processes, etc.



S. Bonfield, of Chicago, and Lester W. David, of Vancouver, are representatives of a Chicago syndicate which contemplates taking over the properties of the Gordon Pulp and Paper Company, at Dryden, Ont. The Ontario Government has granted an extension of time in which the concern may begin operations.

HOW I MADE SULPHITE PULP WITH 8 PER CENT. SULPHUR

By C. E. Bandelin.
(Concluded)

After having been taken from the water the wood should be left for a considerable time, say, at least half a year, to air-dry. Wood treated in this way can be cooked with weaker acid than if taken raw from the woods to the mill.

The following treatment of the wood in the wood-room has little influence on the consumption of sulphur; the writer only wants to mention having seen in a European mill, where the wood was taken directly from the river, how the chips were dried with hot air while they passed over a coarse, metal cloth.

The digesters in the mill now in question were built about as shown in Fig. 8. They contained about 2,000 f³ inside the lining. The top was formed as a half sphere, but the bottom was more tapering. They were lined with two layers of acid-proof bricks in the following manner: Next to the shell came about one inch of a mixture of Portland cement and Chamotte-meal (=fire-clay, burnt and crushed). Then came one layer of bricks, 1 in. to 1 1-5 in. thick, then another layer of cement, about 1/2 in. thick, and finally the inside layer of bricks, 1 to 1 1-5 in. thick, with the seams filled with litharge-glycerine putty. Both sides of the bricks in the first layer and the side nearest to the shell in the second, had rough, rifflled surfaces. The inside surface, however, was smooth. The bricks were harder than the bricks used in this country, and they very seldom cracked or scaled off. Cold water was, of course, never allowed to come in contact with the brick lining while hot.

The whole lining was about 4 in. thick. Some of the inside bricks had holes, in which hooks of phosphorbronze were fastened with litharge-putty. These hooks were holding up the inside lead-pipe coils, so that they sloped evenly from inlet to outlet.

Both direct and indirect steam were used. The direct steam was let in through pipe A at the lower end and the indirect through the four flanges B, about

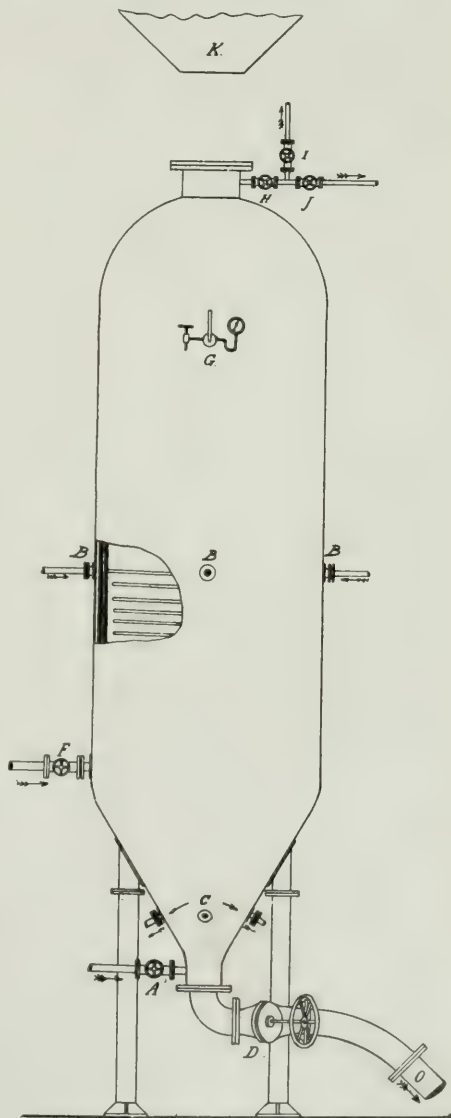


Fig. 8.

half-way up. These flanges were connected inside the digester with four independent lead-pipe coils, each going

around the inside walls about four times. The condensed water was let out through openings C, to condensed-water traps.

D is a blow-off valve, by means of which the pulp can be emptied through pipe E of phosphorbronze, into the blow-pit. It is to be noted that the blow-pit was situated lower than the digester, so that only little pressure was required to empty the digester.

F is the pipe through which the acid was charged into the digester from the tank for hot acid. G is the testing apparatus, containing thermometer, gauge and a valve, through which samples of acid and pulp could be taken. H is the blow-off valve for gases, which were conducted through pipe I to the reclaiming tank, or through pipe J out through the wall of the building.

The digesting process was handled in about the following way. The chips are filled in from the funnel K, and the acid at the same time through F to about half way up in the rounded top part. In order to avoid condensation only indirect steam is let in until the temperature has reached, say, 80° C. Then the direct steam is turned on through A. The valves H and I are opened for a short time, when the pressure has reached, say, 20 lbs., and also when the final pressure, 80-90 lbs., has been reached, in order to let out air.

About half an hour before the charge is ready the steam is shut off and the gases are blown through H and I into the reclaiming tank, placed so high that the acid can run by gravity into the digester. It was lined with cement, chamotte-meal and one layer of acid-proof bricks, and contained about 25% more acid than was required for one charge. The gas-inlet pipe went down through the top of this tank to about one foot from the bottom, where it was connected with a horizontal lead pipe, bent in form of a ring, and having hundreds of small holes, in order to divide the hot gases equally through the tank.

It was found that the acid could be heated through these waste-gases up to

55° or even 60° C., without losing much SO₂. At a higher temperature there was a considerable loss and monosulphite was precipitated. It was also found that the acid increased in volume up to 10% from condensed gases when the tank contained just acid enough for one charge. The percentage of total SO₂ remained about the same as before or was even increased, but the proportion of free SO₂ in relation to the combined was considerably increased.

If the acid in the reclaiming tank should become hotter than 55°-60° C., the balance of the gases is blown out in the open air through pipe J. This happens sometimes at the end of the process, and when, for instance, gases from two charges have been blown in the same acid, or in summer, when the acid is warm already from the start. The loss of SO₂ from this reason is, however, not so big as may be imagined, as the gases given off at the end of the process consist mostly of steam and are consequently less valuable, though they heat the acid much more than the gases going over earlier.

The gases were blown off in this way until the pressure was reduced to about 20 lbs, which pressure usually was sufficient to empty the digester quickly. The whole time for a charge from filling to filling was about 12-14 hours; it could easily have been reduced to less than 10 hours, but as stated before, the mill in question was more looking for quality than quantity.

The pulp was washed two or three times in the blow-pits, and then shoveled out on a belt conveyor, which took it to a disintegrator. This was a large horizontal wooden box having two shafts, with arms, rotating in opposite directions. This device was intended to separate the completely boiled fibres on the outside of bigger chips from the interior, which sometimes could be discolored, especially if the wood had not been quite dry. From here the pulp was let into agitator tanks, from where it was pumped to the screens. (Wandel's rotary with 0.25-0.30

m.m. slots.) Afterwards it was taken up on wet machines of usual construction.

Finally are given some tables facilitating the testing of gases and acid, with a short description of apparatuses used. They are not new, but they are printed here as very useful for a mill where the chemical department is given due attention.

1. Acid. Measure 1 c.c. with pipette; dilute with one-half drinking glass of

water, add a few drops of starch solution, and add — iodine solution until permanent blue color.

The number of cc. J. multiplied with 0.32 gives the percentage of total (SO₂).

The blue color is now caused to disappear by adding a few drops of a very diluted solution of hyposulphite of sodium, a few drops of phenolphthalein in

TABLE I.

J. or NaOH	SO ₂	J. or NaOH	SO ₂	J. or NaOH	SO ₂	J. or NaOH	SO ₂	J. or NaOH	SO ₂	J. or NaOH	SO ₂	J. or NaOH	SO ₂
c.c.	%	c.c.	%	c.c.	%	c.c.	%	c.c.	%	c.c.	%	c.c.	%
20.0	6.40	1.70	5.44	14.0	4.48	11.0	3.52	8.0	2.56	5.0	1.60	2.0	0.64
19.9	6.37	16.9	5.41	13.9	4.45	10.9	3.49	7.9	2.53	4.9	1.57	1.9	0.61
19.8	6.34	16.8	5.38	13.8	4.42	10.8	3.46	7.8	2.50	4.8	1.54	1.8	0.58
19.7	6.30	16.7	5.34	13.7	4.38	10.7	3.42	7.7	2.46	4.7	1.50	1.7	0.54
19.6	6.27	16.6	5.31	13.6	4.35	10.6	3.39	7.6	2.43	4.6	1.47	1.6	0.51
19.5	6.24	16.5	5.28	13.5	4.32	10.5	3.36	7.5	2.40	4.5	1.44	1.5	0.48
19.4	6.21	16.4	5.25	13.4	4.29	10.4	3.33	7.4	2.37	4.4	1.41	1.4	0.45
19.3	6.18	16.3	5.22	13.3	4.26	10.3	3.30	7.3	2.34	4.3	1.38	1.3	0.42
19.2	6.14	16.2	5.18	13.2	4.22	10.2	3.26	7.2	2.30	4.2	1.34	1.2	0.38
19.1	6.11	16.1	5.15	13.1	4.19	10.1	3.23	7.1	2.27	4.1	1.31	1.1	0.35
19.0	6.08	16.0	5.12	13.0	4.16	10.0	3.20	7.0	2.24	4.0	1.28	1.0	0.32
18.9	6.05	15.9	5.09	12.9	4.13	9.9	3.17	6.9	2.21	3.9	1.25	0.9	0.29
18.8	6.02	15.8	5.06	12.8	4.10	9.8	3.14	6.8	2.18	3.8	1.22	0.8	0.26
18.7	5.98	15.7	5.02	12.7	4.06	9.7	3.10	6.7	2.14	3.7	1.18	0.7	0.22
18.6	5.95	15.6	4.99	12.6	4.03	9.6	3.07	6.6	2.11	3.6	1.15	0.6	0.19
18.5	5.92	15.5	4.96	12.5	4.00	9.5	3.04	6.5	2.08	3.5	1.12	0.5	0.16
18.4	5.89	15.4	4.93	12.4	3.97	9.4	3.01	6.4	2.05	3.4	1.09	0.4	0.13
18.3	5.86	15.3	4.90	12.3	3.94	9.3	2.98	6.3	2.02	3.3	1.06	0.3	0.10
18.2	5.82	15.2	4.86	12.2	3.90	9.2	2.94	6.2	1.98	3.2	1.02	0.2	0.06
18.1	5.79	15.1	4.83	12.1	3.87	9.1	2.91	6.1	1.95	3.1	0.99	0.1	0.03
18.0	5.76	15.0	4.80	12.0	3.84	9.0	2.88	6.0	1.92	3.0	0.96	...	...
17.9	5.73	14.9	4.77	11.9	3.81	8.9	2.85	5.9	1.89	2.9	0.93	...	...
17.8	5.70	14.8	4.74	11.8	3.78	8.8	2.82	5.8	1.86	2.8	0.90	...	...
17.7	5.66	14.7	4.70	11.7	3.74	8.7	2.78	5.7	1.82	2.7	0.86	...	...
17.6	5.63	14.6	4.67	11.6	3.71	8.6	2.75	5.6	1.79	2.6	0.83	...	...
17.5	5.60	14.5	4.64	11.5	3.68	8.5	2.72	5.5	1.76	2.5	0.80	...	...
17.4	5.57	14.4	4.61	11.4	3.65	8.4	2.69	5.4	1.73	2.4	0.77	...	...
17.3	5.54	14.3	4.58	11.3	3.62	8.3	2.66	5.3	1.70	2.3	0.74	...	...
17.2	5.50	14.2	4.54	11.2	3.58	8.2	2.62	5.2	1.66	2.2	0.70	...	...
17.1	5.47	14.1	4.51	11.1	3.55	8.1	2.59	5.1	1.63	2.1	0.67	...	...

alcohol are added, and n/10 hydrate of sodium is run in until permanent pink color.

The number of (cc. NaOH cc. J) \times 0.32 gives the percentage of free SO₂.

Following table will save the trouble of calculating for every time.

II. The digester liquor in order to determine the right moment to "blow off" a digester.

Measure 1 cc. liquor from digester into half a drinking glass of water, add some starch and n/100 J. to blue color remaining for about $\frac{1}{2}$ minute.

The number of cc. J. \times 0.032 gives the percentage of SO₂.

TABLE II.		Remarks		
cc. n/100 F.	% SO ₂	Mill No. 1	Mill No. 2	Mill No. 3
10	0.32	Pulp is coarse.		
9.5	0.30			
9	0.29			
8.5	0.27			
8	0.26			
7.5	0.24			
7	0.22			
6.5	0.21	Pulp is ready.		
6	0.19			
5.5	0.18			
5	0.16	Pulp is ready for bleached.		
4.5	0.14			
4	0.13	Pulp begins to become discolored.		
3.5	0.11			
3	0.10	Pulp is burnt, ready for Spruce.		
2.5	0.08			
2	0.06	Pulp is burnt, ready for Hemlock.		
1.5	0.05			
1	0.03			
0.5	0.02			

The right moment to blow off is different in most mills, but it is easy enough to find it out.

No. 1 is the mill, to which this paper refers.

In the table are given for comparison also the corresponding data from two

American mills.

No. 2 vertical digesters about 4 tons dry pulp spruce and hemlock, pressure 70-80 lbs.

No. 3 vertical digesters about 8 tons dry pulp spruce and hemlock, pressure 70-80 lbs.

It is to be noted that when the pulp from No. 1 was blown out, the pressure had been allowed to go down to about 20 lbs., so the pulp had to remain in the digester for some time while all the gases were blown off.

The point marked "ready" in the table really means here the point when the steam was shut off, and it sometimes

took half an hour before the pulp was actually blown out, during which time the chemical action continued, though less energetically. For No. 2 and 3 the indicated point means that steam was shut off and the pulp immediately afterwards blown out.

III. The strong gases at entrance into absorbing system.

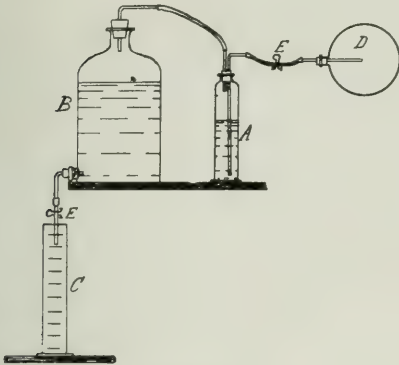


Fig. 9.

The apparatus shown in Fig. 9 was used.

A contains about 100 cc. water, 100 cc. n/100 J. and a few drops of starch solution. B contains about 2 litres of water. C is a graduated litre cylinder.

Gas is sucked from the gas pipe D through A by opening the pinch cocks E E until the blue color disappears.

The result is calculated according to the following formula:

$$\frac{11.14 \times 100}{\text{cc. H}_2\text{O} + 11} = \text{vol. \% SO}_2.$$

Table III. gives the results.

IV.—The gases leaving the absorption apparatus.

Some apparatus as in III. is used, but

only 10 c.c. — $\frac{12}{100}$ J. are taken. The formula is here:

$$\frac{11.14 \times 10}{\text{c.c. H}_2\text{O} + 11} = \text{vol. \% SO}_2.$$

A comparison between two tests, according to III. and IV., and taken at same time, gives the loss of SO₂, leaving the apparatus unabsorbed. If the gases from the burners, for instance, hold 15%, and at the end of the absorption apparatus, say, 0.10, it is easy to see that the loss from this reason amounts to 0.67, which is a rather high percentage. In fact it is possible to reduce the loss from this reason to nearly 0, with the acid-system described above and where suitable limestone is at hand

Even such a low percentage of SO₂ as 0.01 can be detected by the smell, and if no smell can be noticed at the outlet opening for the gas from the towers, no fear needs to be entertained that any considerable quantity of SO₂ is going to waste there.

TABLE III.

c.c.		c.c.	%	c.c.	%	c.c.	%	c.c.	%	c.c.	%	c.c.	c.c.
50	18.3	90	11.0	130	7.9	170		SO ₂	H ₂ O	SO ₂	H ₂ O	SO ₂	H ₂ O
H ₂ O	SO ₂	H ₂ O	SO ₂	H ₂ O	SO ₂	H ₂ O		6.1	220	4.8	300	3.6	380
55	16.9	95	10.5	135	7.6	175		5.9	230	4.6	310	3.5	390
60	15.7	100	10.0	140	7.4	180		5.8	240	4.5	320	3.4	400
65	14.7	105	9.6	145	7.1	185		5.7	250	4.3	330	3.3	420
70	13.8	110	9.2	150	6.9	190		5.5	260	4.1	340	3.2	440
75	12.9	115	8.8	155	6.7	195		5.4	270	4.0	350	3.1	460
80	12.2	120	8.5	160	6.5	200		5.2	280	3.8	360	3.0	480
85	11.6	125	8.2	165	6.3	210		5.0	290	3.7	370	2.9	500

FROM A MACHINE TENDER'S EXPERIENCE.

Translated and Compiled for Pulp and Paper Magazine from "Papierseitung," by C. E. Bandelin.

Folds.

The First Press causes folds if the paper has not been evenly pressed by the couch rolls, or if the roll conducting the felt has not been properly arranged, or if the felt itself runs in folds.

The Dryers.—Folds are formed when the paper enters between felt and cylinder if it has not been evenly pressed before, i.e., if it does not have the same degree of moisture through the whole of its width, which causes the part stronger pressed to be longer. This can be helped by a corresponding alteration of the guide-roll, or also aft by rolling straps of paper around the guide-rolls, if the paper is too long at the sides. This is the rule in all places where the paper enters, consequently also for couch rolls and other presses.

One Cylinder Machine.—In many cases folds can here be gotten rid of if the roll receiving the paper before the rubber roll is placed so high, that the paper for a short time touches the surface of the top roll.

Guide Rolls With Springs often cause the forming of folds. The best way here is to stretch the paper as much as possible.



At the Canadian National Exhibition there were a few exhibits directly interesting to the pulp and paper trades. In the Railway Building photographs were shown of the mills of the Laurentide Paper Company, and Belgo Pulp and Paper Company, also samples of pulpwood, pulp and paper from those mills. In the Horticultural Building in the Ontario Government exhibit, the Crown Lands Department, exhibited pulpwood cut from the Crown lands of Northern Ontario; also through Geo. H. Gillespie & Company, of Madoc, talc in different stages of manufacture.

TABLE IV.

c.c.	%	c.c.	%	c.c.	%	c.c.	%	c.c.	%	c.c.	%	c.c.	%	c.c.	%
H ₂ O	SO ₂	H ₂ O	SO ₂	H ₂ O	SO ₂	H ₂ O	SO ₂	H ₂ O	SO ₂	H ₂ O	SO ₂	H ₂ O	SO ₂	H ₂ O	SO ₂
4.000	0.03	2,000	0.05	1,000	0.06	1,200	0.09	450	0.14	250	0.24	200	0.27	125	0.43
3.500	0.03	1,900	0.05	1,500	0.07	1,100	0.10	400	0.16	200	0.27	175	0.31	100	0.52
3.000	0.04	1,800	0.06	1,400	0.07	1,000	0.11	350	0.18	175	0.31	75	0.60	75	1.30
2.500	0.04	1,700	0.06	1,300	0.08	900	0.12	300	0.20	150	0.36	150	0.70	50	1.83

PULP POSSIBILITIES AROUND EDMONTON.

"The Pulp and Paper Magazine" having been asked as to the possibilities of establishing a pulp industry in the vicinity of Edmonton, we are enabled to give the views of Secretary Fisher of the Board of Trade of that city:—

"It is quite safe to say that there is absolutely no question as to there being available an ample supply of spruce pulp wood. I find that the Imperial Pulp Company control timber to the extent of 350 square miles. All of this timber is for sale as they are not doing any manufacturing. In addition to this, there are, approximately, 200 square miles of good milling spruce controlled by saw mills here. I have reason to believe that it would not be a difficult matter to buy out some of these concerns. I have obtained careful estimates of the amount of timber carried on these various limits, from cruisers of wide experience, and the result of these inquiries shows that the mileage referred to would carry about 2,210,000 cords of spruce pulp wood. This timber is all on the Saskatchewan River, or its tributaries, and could be floated to Edmonton. There are in addition, a good many small blocks of timber tributary to these waters which are not included in the above estimate. There are also large areas of spruce, possibly carrying more timber than the areas above described, the timber from which could be brought into Edmonton by rail, with only a moderate haulage. There are large areas of timber along the Pembina, about seventy-five miles west of Edmonton, and also good timber areas at other points accessible by railway.

"Poplar in enormous quantities is scattered throughout the entire district. I would scarcely like to undertake to make an estimate of the amount of poplar available, it is almost unlimited, however.

In regard to water power, I might say that at present there is none available. Our city authorities are now in treaty with a party of capitalists who propose to develop a large amount of hydraulic power at a point on the Saskatchewan, about one hundred miles above Edmonton. It is estimated that 30,000 horse-power may be obtained there, with a comparatively small investment. The negotiations now pending between the company and city are for a contract by the city to buy 10,000 horse-power; this power, of course, to be delivered here. The city needs about 4,000 horse-power for city services, but the idea is that the other 6,000 horse-power on this contract would be available for re-selling for industrial enterprises. It is understood that the city authorities and the company have practically got together on the details of these schemes, and the contract is likely to be signed up within a few days.

Failing the development of this water power, we, of course, have unlimited supplies of what is probably the cheapest coal in Canada."



TRADE OPPORTUNITIES.

The following enquiries have been received by the Department of Trade and Commerce, Ottawa. Names and addresses may be had by writing Enquiries Branch, Department of Trade and Commerce, or the "Pulp and Paper Magazine."

1035. **Wood pulp.**—An Italian firm desires to import wood pulp from Canada. At present they import largely from Germany and Norway, but they wish to hear from Canadian exporters.

1050. **Brown wrapping paper.**—A London firm wishes to be placed in communication with Canadian manufacturers of brown wrapping paper who can offer supplies for the Australian market.



A quantity of pulpwood valued at \$6,000, stacked near St. Evariste, Que., was destroyed by fire.

PULP AND PAPER NEWS

The premises of V. E. Ashdown & Company, wall paper dealers, Toronto, were damaged by fire to the extent of \$1,000.

* * *

The Jas. MacLaren Company, Limited, are grinding to full capacity at their pulp mills at Buckingham, Que.

* * *

The Ontario Paper Box Company's factory at Hamilton, Ont., was damaged by fire, though not seriously.

* * *

W. H. Rowley, president of the E. B. Eddy Company, has returned to Canada after a prolonged visit to England and the Continent.

* * *

Jas. Davy, proprietor of the Davy Pulp Mill at Thorold, Ont., contemplates moving his mill to some other locality further north

* * *

The Ontario Government has given a contract to the Kinleith Paper Company, St. Catharines, for 600 tons of mill-finish book paper. The price is said to be \$4.25 per hundred.

* * *

The Toronto Paper Manufacturing Company's employees at Cornwall held a very successful excursion to Stanley Island, in the St. Lawrence River, last month.

* * *

One of the features of the Central Canada Exhibition held in Ottawa this month is a public demonstration of manufacturing processes by the E. B. Eddy Company, Hull.

Lord Northcliffe, head of the Anglo-Newfoundland Development Company, arrived a few days ago in Montreal. He is on his way to inspect the company's immense plant in Newfoundland.

* * *

The Grenville Wood Products Company has taken over an old factory in Thorold, Ont., and will make various wood specialties out of the by-products from the pulp mills of that town.

* * *

The Eastern Townships Lumber Company, Limited, Sherbrooke, Que., has been incorporated with a capital of \$50,000 to deal in timber lands, pulpwood, etc. E. C. and G. C. Goodhue, of Sherbrooke.

* * *

T. J. Foley, who was formerly with the International Paper Company's mill at Riley, Me., is now acting as superintendent of the pulp mill of the North Shore Power, Railway & Navigation Company, Clarke City.

* * *

The plant and assets of the British-Canadian Wood Pulp & Paper Company which has a mill at Port Mellon, B.C., are reported in Ottawa to have been taken over by a syndicate composed of Jos. Martin, K.C., J. S. Harvey, and T. F. Patterson.

* * *

W. J. Gage, of W. J. Gage & Company, manufacturing stationers, and president of the Kinleith Paper Mills, St. Catharines, also president of the Toronto Board of Trade, has left on a prolonged tour of Great Britain and Europe.

The British American Wax Paper Company, Toronto, has been authorized to increase its capital stock from \$50,000 to \$600,000. It is also empowered to build and operate mills and factories.

* * *

The St. Lawrence Paper Mills Company, Mille Roches, Ont., has received a large proportion of its new machinery, including the 136-inch Fourdrinier from England. When installed this mill will have a total capacity of book paper of 35 tons per day.

* * *

The Hutchison Fibre Board Folding Box Company, Muskegon, Mich., will build a factory in Woodstock, Ont., having recently been incorporated in Ontario under the title of the Fibre Board Folding Package Company, Limited, with a capital of \$100,000.

* * *

Barber & Ellis Company, Toronto, held their annual meeting last month, and re-elected J. R. Barber president, and J. F. Ellis, secretary-treasurer. The old board of directors were re-elected. The company's factories in Toronto and Brantford are very busy just now.

* * *

Joseph Bergeron, a lad employed as sieve feeder in the E. B. Eddy Company's No. 1 mill, Hull, Que., became caught in the machinery and was instantly killed, his remains being discovered in a mass of clogged pulp in a cardboard machine.

* * *

The SS. "Benin" sailed a few days ago with over 200 tons of paper for South Africa, most of it shipped by the Laurentide Paper Company. Several other shipments of paper have recently been made from Montreal, to various points, such as Newfoundland, London, Liverpool and Glasgow.

The Skeena Timber Company, Limited, Toronto, capital, \$1,000,000, has been incorporated to acquire timber lands, manufacture pulp and paper, etc. A. W. Ballantyne, and C. F. Ritchie, Toronto.

* * *

The Hughes-Owens Company, Limited, Ottawa, has been authorized to increase its capital stock from \$35,000 to \$149,000, also to manufacture blue and black print papers, drawing papers, etc.

* * *

The J. C. Wilson & Company, Limited, Montreal, have been authorized to do business in British Columbia as manufacturers of pulp and paper, etc. E. A. Baker, Vancouver, is the company's representative.

* * *

The Canadian Linderman Machine Company, of Muskegon, Mich., will erect a factory at Woodstock, Ont., for the manufacture of machines for making boards out of scraps of wood which at present are generally burned.

* * *

There are said to be requests in Ottawa and Quebec for 4,000 men for work with pulpwood and lumber concerns. Wages are said to average \$32, compared with \$26 at this time last year, and the hiring contracts are more favorable for the men.

* * *

The New Brunswick Pulp & Paper Company, of Millerton, N.B., manufacturers of kraft brown papers, have adopted a novel but very practical plan of making their products known. This is by the use of a light weight and well finished grade of kraft paper for letter headings and envelopes. The purple typewriting on the olive brown paper has a pleasing effect, and no more serviceable paper could be used for ordinary commercial purposes.

The Canadian Power & Paper Company, Toronto, has been granted a Dominion charter to manufacture pulp and paper and develop water-powers. The capital is placed at \$10,000,000. The incorporators are F. H. Phippen, K.C., Gerard Ruel, and G. F. Macdonnell, Toronto.

* * *

The Appleford Counter Check Book Company propose to establish a factory at Hamilton, but a difficulty has arisen through the City Council consenting to the location of the works in a residential district. An ex-alderman threatens an action against the city, but a compromise is suggested whereby the city agrees not to permit other factory locations in that quarter.

* * *

In a recent interview Mr. Allard, the Minister of the Crown Lands and Forests, said that he was pleased to state that his department was beginning to see some effects of the prohibition of the export of pulpwood as he could see many American paper manufacturers who are now negotiating for the establishment of paper mills in the province. Mr. Allard added that in the near future further developments would be ripe for publicity and would be of a most encouraging character.

* * *

The Western Canada Bag, Envelope & Box Board Company is making good progress on the building of its plant at Sapperton, B.C. The factory is located on Brunette River, and has a frontage on the Great Northern line between New Westminster and Vancouver. The machine room and beater room are almost complete, the former being 180 by 40 feet, and the latter 180 by 50 feet. These and several other buildings will all be connected together. The company will supply the market in British Columbia and the prairie provinces.

Sir Wilfrid Laurier did not hold out much encouragement to Fort Frances in its fight to preserve its power on the Canadian side. In reply to an address which was handed him there, he said: "The river is the common property of the two nations, so the power which is developed here should be the common property of the two nations. On the other side of the river the power-house is in use. On this side it is not, but this is so much the worse for the community that the power is developed, but it is idle, and it will remain idle until it is used on this side of the line."

* * *

Again has J. R. Booth, of Ottawa, shown his generosity towards employees. During the G.T.R. strike, it will be remembered that the lumber mills had to be closed down through lack of cars to carry away the product. The men, though it was not their fault, naturally expected no pay for the time during which they had been idle. Mr. Booth, however, gave orders for every man in his employ to be paid in full just as though no strike or cessation of work had taken place. The strike cost him in wages somewhere in the neighborhood of \$35,000, but he felt he could afford to lose that sum better than the men.

* * *

The East Canada Power & Pulp Company has been incorporated with a capital of \$3,000,000 to build a 100-ton mechanical pulp mill near Murray Bay, Que. The company owns about 390 square miles of spruce land, also the entire water-power rights at Nairn Falls on Murray River, which are capable of developing about 8,600 horse-power. Among the directors of the company are C. W. Tooke, of the Oswego Falls Paper & Pulp Company; Marcus F. Stoddard, of Syracuse, N.Y.; R. Forget, M.P., of Montreal; and F. M. Hugo, of Watertown, N.Y., who is heavily interested in paper and pulp mills.

The firm of Stetson, Cutler & Company, proprietors of the St. John Pulp & Paper Company at Mispec, N.B., have suspended operations at their mill pending the renewal of their lease of power rights from the city of St. John. The company leased the rights to the power at \$3,500 per year for five years, which have expired this season and the city has not yet accepted the company's offer of \$2,500 for a renewal for another five years. Before Messrs. Stetson, Cutler & Company took hold and utilized the Mispec power it had been going to waste for years, and it is hoped that the Council will recognize that a moderate and regular income is better than a relapse into the condition that prevailed before the company utilized the power and gave steady employment to a number of hands, building up a good industry for the district. * * *

The Powell River (B.C.), Paper Company have given a contract to the John McDougall Caledonian Iron Works, Montreal, for eleven Worthington centrifugal pumps, varying in size from 3 to 12 inches at outlet. Two of these pumps, each with a capacity of 4,200 gallons per minute, and driven by electric motors, will carry ground wood stock from the grinders to the screens. Two others, with a capacity of 4,000 gallons per minute each, will carry ground wood stock to deckers. The remaining pumps will be used in connection with beaters and digesters, and for boiler feed and general purposes. The pumps will have an aggregate capacity of 37,000,000 gallons daily. The company's plant is expected to be in readiness for operation by July next, and will have a capacity of 100 tons of paper daily. A larger dam is being built across Powell River.

* * *

By the purchase of the plant and mill site of the Andre Cushing Company the Edward Partington Pulp & Paper Company of Fairfield, St. John, N.B., will have an asset of great prospective value, where the mills can be enlarged and water privileges controlled. This ac-

quisition gives the company ownership of the whole island on which the mill is built. It is not the intention of the company to re-open the small pulp and paper mill of the Cushing Company, which was not considered a profitable branch of the Cushing establishment as carried on. The capacity of the Edward Partington Pulp & Paper Company is 50 tons of sulphite pulp per day, and the mill is now being operated to its full capacity. A number of improvements have been made to this plant in the past two years, under the management of J. R. Clarkson. New engines of British make from the firm of Belliss & Morcom, Birmingham, have been installed. These engines are of 465 h.p. and operate dynamos, also of British make, of 300 k.w. The six new bleachers are operated by separate motors of 45 h.p. each. The drying machine is a fine sample of engineering work, and consists of 25 drying cylinders of 160-in. width, being among the largest in the world. It was made by Bertrams, Limited, of Edinburgh. H. W. Schofield, secretary of the Partington Pulp & Paper Company, who has been on a business trip to England, returns this month.

* * *

—Guy Tombs, Montreal manager of the Canadian Northern Railway, states that the pulp mills along the line of the Canadian Northern Quebec Railway now turn out 516,000 tons of pulp wood per annum and 140,000 tons of news paper and cardboard. There is an unprecedented demand for pulp wood in New York State at the present time, owing to shortage of water, and several of the New York paper mills have representatives in the Lake St. John district buying up the available pulp.

—In some provinces of Sweden, mutual insurance organizations have been formed for assuming risks against forest fires. Forest owners can now take out policies for the protection of growing as well as standing trees, including indemnities against loss of timber kept in stock within a radius of half a mile from actual woodlands.

CANADA'S COMPETITION ON THE WOOD PULP MARKET

Norwegian papers have told with a certain degree of concern, that the big English paper manufacturer, Albert Reed, who had already bought Bingsfossen waterfall in Norway in order to build a ground wood pulp mill, has given up these plans, and has instead concentrated his energy on his Newfoundland enterprise. The Norwegian pulp and paper industries expect evidently a serious competition from Canada on the English pulp and paper market on account of the starting of the Harmsworth mills on Newfoundland, even if their size has been considerably exaggerated. Mr. A. Müntzing, editor "Svensk Papperstidning," has been asked by a Swedish leading paper for his opinion, which we here reproduce, as being of general interest.

Mr. M. has, after diligent study of the foreign special papers, not been able to ascertain if the data given as to the size of the new plant are correct or not. He has also been unable to obtain reliable information as to the quantity and quality of the wood to be used for ground pulp in Newfoundland. "New York Herald" had sent one of its staff there for the same purpose, and according to his statements, the wood was said to be rather poor; his statements were, however, at once opposed from Canada and declared to be misleading. It is a fact that enormous quantities of Newfoundland ground wood-pulp will be brought to the English market in the next few years.

Mr. M. does not believe in a real paper industry in Newfoundland. The climate is said to cause trouble, and it is very difficult to get skilful paper laborers. Most of the pulp would probably be made into paper in new mills to be built in England. As this would be mostly for news it would not be of so much importance to Swedish paper mills, according to Mr. M., as their export has more and more changed over to other grades, especially wrapping paper. The Swedish ground wood pulp manufacturers on the

other hand would feel the competition and Mr. M. warns against building new ground wood pulp mills in Sweden. He is, however, sure that the Canadian competition will only be temporary; even if rather strong the first years. The United States will need all ground wood pulp in twenty years from now, if not before, that Canada will be able to produce and even more.—Translated for Pulp & Paper Magazine from Der Papierfabrikant.

C. E. B.



The pulp mill of Andre Cushing & Company, owned by Geo. S. Cushing, Fairfield, St. John, is no more. The mill which had been operated as a department of the lumber business of Cushing & Company, had been closed for over a year, but the recent assignment of the firm puts a definite end to the prospect of the re-opening of the pulp and paper branch. The mill had only two grinders and one small machine on building paper, with an output of about three tons a day. It is claimed by those who know that owing to being over manned it was operated at a loss. The liabilities of the firm of Cushing & Company, which were nearly all in the lumber trade, amounted to about \$750,000, but the ordinary creditors will not receive any dividends to speak of. Litigation in past years was responsible for much of the firm's loss, and it is said that the lawsuits with the Edward Partington Pulp & Paper Company alone cost the Cushing Company about \$350,000. The Edward Partington Pulp & Paper Company purchased the assets, the chief value of which is the proprietorship of the island on which the plant is erected. This now gives the purchasing company the sole ownership of the island. No information is given out as to the amount paid for the building and site, but \$70,000 has been mentioned as the approximate price. It is reported that the saw mill plant will be sold, and the Gibson Company at Marysville are said to be negotiating for it.

CAN THE SULPHIDE OF SODIUM IN SULPHATE PULP LYES BE DESTROYED IN THE "MIXER"?

By A. Ahlin.

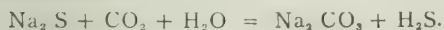
From "Svensk Papperstidning."

Translated by C.E.B. for Pulp & Paper Magazine.

When the raw soda is calcined in the melting oven, silicic acid is always present. Then silicate of sodium is formed and afterwards dissolved:



and in order to utilize the alkali thus combined with silicic acid, without spoiling the sulphide of sodium, it has been proposed to add carbonic acid or bicarbonate of sodium in the "mixer" before the causticizing in such a quantity, that the carbonic acid corresponds with the silicic acid present. It is easy to understand that the sulphide of sodium can be destroyed, if too much carbonic acid is added:—

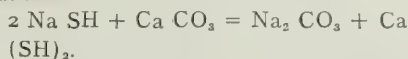


Another inconvenience with this method is that the silicic acid is precipitated as a gelatinous precipitate, which is very difficult to wash out, and it has happened, that this sludge can contain up to 4-5% of the alkali of the lye.

It has been believed that the sulphide of sodium has been protected, if much lime is added without a previous carbonization of the silicate, but a silicate of lime is then also precipitated, which causes the same inconveniences, as it too is gelatinous. The man in charge then complains over too much sludge, which now depends upon the presence of silicic acid in the lye, provided the same quantity of lime is used.

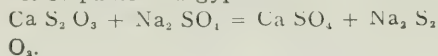
In concentrated solutions, as in the usual digesting lye, (i.e., in solutions of over 15° Bé), both sodium hydrate and sodium-sulphide can take back carbonic acid from the precipitated sludge, and it can be noticed that part of the sulphide in the lye is destroyed in the same ratio with

an increasing degree of causticizing if the solution has before been tested volumetrically as to its percentage of sulphide.



The sulph-hydrate of lime thus formed, which accompanies the lye, is partly oxidized through the air, and forms thio-sulphate of lime:

$\text{Ca}(\text{SH})_2 + \text{O}_4 = \text{CaS}_2\text{O}_3 + \text{H}_2\text{O}$, which afterwards together with the sodium-sulphate in the lye gives sodium-thio-sulphate and gypsum:



A different degree of causticizing may be used by different concerns, but a **uniform** quality requires a uniform lye. And the chemical composition of the lye depends upon the melting oven and the "mixer"

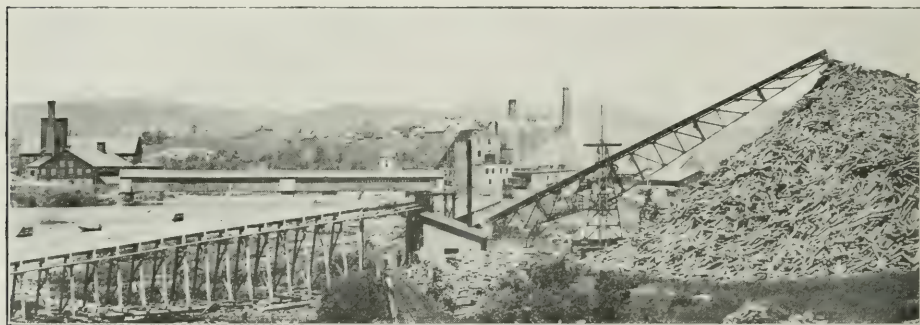


—The Smart-Turner Machine Company, Limited, Hamilton, have recently supplied pumps, etc., to the following firms:—The E. Long Manufacturing Company, Orillia, automatic feed pump and receiver; T. J. McCutcheon, Dunnville, standard duplex pump; Mr. James Cornhill, Chatham, Ont., duplex pump; the Randolph McDonald Company, Norwood, centrifugal pump, direct connected to a steam engine; the Evans Company, Sudbury, duplex pump; the Monarch Knitting Company, Dunnville, Ont., vacuum pump and an automatic feed pump and receiver; Mr. Nairn, of Bartonville, automatic feed pump and receiver, and gasoline engine driven power pump; St. Joseph's Convent, Toronto, automatic feed pump and receiver, for the heating system; the Niagara Brand & Spray Company, Burlington, magma pump; the Great Lakes Dredging Company, Port Arthur, duplex pot valve pump; the Ontario Iron & Steel Company, a single acting triplex power pump, for new plant at Welland; G. C. Allen, Alliston, a centrifugal pump.

JEFFREY PULPWOOD CARRIER.

The Brompton Pulp and Paper Company, East Angus, Que., recently installed a new pulpwood carrier, of which we present a picture, and which they thus describe:—"The new Pulpwood Carrier is working very satisfactorily, taking out about 200 cords in ten hours. The steel for this outfit was furnished by the Structural Steel Company, Montreal, and the machinery by the Jeffrey Manufacturing Company, Montreal. The principal thing about this carrier is that it takes very few men to operate it, and

304, compared with \$283,892 for last year. After payment of preferred and common stock dividends, and \$20,000 appropriated for depletion of plant, a balance of \$293,427 will be carried forward. The profits for the year are equal to 23.20 per cent. on the common stock, compared with 12.49 per cent. for last year and 9.02 for the previous year. Profits increased 82 per cent. over last year's earnings. These increased profits come more largely from lower cost of production than from better prices. There was also considerable reduction in interest charges. Of the \$1,000,000 of



Jeffrey Pulpwood Carrier.

does as much work as some other carriers that require much more help to run them, and the repairs so far have been slight.

"At present we are using two steam engines; one to bring the wood from the river to the carrier, and the other to run the carrier itself. This we will do away with next year, and replace them with two motors, which will be much more economical, and we trust will give better results. We are getting along very well with our new ground wood mill, and expect to have same in operation by December 1st. We are also enlarging some of our other mills."

**LAURENTIDE PAPER COMPANY.**

The annual report of the Laurentide Paper Company shows profits of \$516,-

new common stock authorized by the shareholders at the special general meeting of September 7th, 1909, the sum of \$800,000 has been issued. Sales of ground wood, sulphite pulp, paper and cardboard for the year totalled \$669,892, lumber \$105,631.



—Jas. Lawler, Secretary of the Canadian Forestry Association, has returned to this country after a tour in the United States gathering information relative to forestry organization and regulations. He expresses himself much pleased with the progress that has been made in these lines in the United States. Mr. Lawler will, in future, take up his residence in Ottawa, from which place he will travel over Canada arranging conventions and illustrated lectures.

SHERBROOKE MACHINERY COMPANY.

The above company has recently perfected and standardized a special improved form of wet machine which is producing a greater net output of (air-dry) stock than any other type of the same size, and is also saving large sums by reducing the gross weight of water contained therein. Hence fewer machines of this type are required for a given output, and they require much less labor because of the great reduction of useless (wet) weight of this stock. They are able to get these results in part by a special patented combination of main and auxiliary rolls with cotton and woollen felts, especially arranged to increase the dryness of the laps, and in part by the careful general design and construction of the machines. The quality of the laps produced is unequalled; and all subsequent hydraulic repressing is rendered unnecessary.

THE CHEMICAL PROCESSES IN THE BLEACHING OF PULP.

By Prof. Dr. Carl G. Schwalbe,
Darmstadt.

Translated for Pulp & Paper Magazine
from Wochenschrift für Papierfabrikation, by C.E.B.

Cold and Hot Bleaching

Specialists have not as yet agreed whether hot bleaching is advantageous or not. For instance, Knösel regards the hot bleaching as preferable and not damaging to the fibre, while Cross says that only cold bleaching ought to be used. The disadvantages of the hot bleaching can depend upon:—

- (1). Loss of bleaching material, either as gaseous chlorine, or in form of chlorate.
- (2). Lowering of the strength of the pulp.

Regarding (1) it is easy to see that in alkaline solutions no loss of chlorine



TENDERS FOR PULPWOOD CONCESSION

Tenders will be received by the undersigned up to and including the 7th day of October next for the right to cut the pulpwood on a certain area tributary to the Nepigon River in the District of Thunder Bay. Tenderers should state the amount they are prepared to pay as bonus in addition to such dues as may be fixed from time to time for the right to operate a pulp and paper industry on the territory. Successful tenderers will be required to erect a mill or mills on the territory, and to manufacture therefrom the wood into paper.

Tenderers will be required to deposit with their tender a marked cheque payable to the Treasurer of Ontario for twenty-five per cent. of their tender, to be forfeited in the event of their not entering into agreement to carry out conditions, etc.

The highest or any tender not necessarily accepted. For particulars as to description of territory, capital required to be invested, etc., apply to the undersigned.

F. COCHRANE,

Toronto, 8th July, 1910.

Minister of Lands, Forests and Mines.

No unauthorized publication of this notice will be paid for.

is to be expected for theoretical reasons, as alkaline bleaching solution only will be changed from hypochlorite into chlorate at a higher temperature. Anyhow, hypochloric acid as well as chlorine can be formed in acid liquids, especially if the acid has been added in one place without sufficient mixing and dilution. It is always to be taken into consideration, that the "bleaching smell," from which the presence of free chlorine so often is being judged, can be caused by organic chlorides and other, as yet unknown, substances, formed during the oxidation of the incrusting substances. Chlorine could not be detected with moist iodide of potassium starch-paper in the air above the bleaching beater, when the bleaching was done in a alkaline liquid. The presence of the peculiar "bleaching smell" has only recently been reported, and has then been supposed to depend upon the formation of ozone.

The second possible cause of loss, through formation of chlorate, takes place when the pulp is heated. Anyhow, the loss here is not so important as could be supposed according to the theory. It is known that the rapidity of the transforming into chlorate is doubled for every increase in the temperature of 7.5° (C). The transforming up to 40° (C) is still very unimportant, which proves that the consumption of the bleaching chlorine in the pulp takes place quicker than the formation of chlorate from the hypochlorite.

It seems to be usual to let in direct steam into the bleaching heater. The pulp will then be too much heated at the point of inlet for the steam, especially where the circulation is slow. It would certainly be more appropriate to heat the pulp with hot water of a fixed maximum temperature, instead of with steam. Still the author is not sure that the heating by means of a coil with hot water can be made practically and economically. He believes, at least to judge from his experience with the small quantities used in his experiments, to have avoided any

formation of chlorate through local superheating. A lead coil, fed with water of 40 degrees (C.) maximum temperature was therefore put in the bleaching beater. The water was heated in a copper coil with thermometer outside of the beater by means of a Bunsen burner. The experimental beater allowed a maximum charge of only 3.5 per cent. if the pulp should be able to circulate, and consequently it is not quite sure that the same conditions would exist with pulp of 7 per cent. The experiments may, however, throw some light upon what actually takes place. Some remarks about the influence of hot bleaching upon the quality and quantity of the pulp will first be given, before describing the experiments. Hot bleaching could, for instance, cause a greater loss of fibres and a poorer quality, but according to several experiments the loss of fibres is normal. Before it was only possible to judge the strength of the bleached pulp by testing the paper made from it.

The author has some time ago been able to prove that a superbleaching, a lessening of the strength, can be observed by an increase of the reduction capacity, depending upon the formation of oxycellulose or hydrocellulose, and that a comparatively simple, quantitative determination of the reduction capacity is possible. In experiments about hot-bleaching it must therefore also be tested if the pulp has a higher or the same reduction capacity as the cold-bleached pulp.

700 grams unbleached sulphate pulp with 200 litres of water, consequently 3.5 per cent. of pulp, were ground in the beater mentioned before. The heating coil was put in place already before the cold bleaching, but not heated. This was done because the coil caused a certain obstruction in the circulation, and it was desired to keep the velocity of the circulation always as uniform as possible. For instance, 1,700 cc. of a solution of chloride of lime with 1.8 per cent. chlorine were used during 8 hours for bleaching. The liquid was afterwards filtered

from the pulp and the chlorate determined in the filtrate. The pulp was dried at 25 degrees (C.) after having been completely washed out, and its reduction capacity determined in the manner described above. The chlorate should first be determined through oxidation of a certain quantity of ferro-sulphate. An acid solution of ferro-sulphate is oxidized both by chlorine and by hypochlorite. If now the quantity of hypochlorite used is known, (which can be determined volumetrically with $n/10$ arsenious acid), so can that quantity of iron be calculated which has been oxidized by the chlorate. The quantity of chlorate should probably show an increase for hot bleaching. It was found, however, that determinations according to this method gave completely useless results, because the used bleaching solution contained organic substances, which counteract the oxidizing influence of the chlorate through reduction.

Another method of determination must therefore be found. The following way to execute the analysis was found to be practical. Any hypochlorite still present in the filtered bleaching liquid is destroyed with peroxide of hydrogen. Nitrate of silver is afterwards added and the total amount of chlorine is precipitated as chloride of silver, (also the chlorine derived from the hypochlorite). After titration the solution contains the chlorate only. If ferro-sulphate now is added, it will be oxidized to ferri-sulphate by the chlorate, which in its turn is changed into chloride. The chlorate-chlorine is found, if nitrate of silver is added to this liquid, and the chlorine is precipitated and weighed as chloride of silver.

Volumetric tests with chloride of silver did not give exact results. For instance, 50 cc. silver solution were used to precipitate the chlorine in 100 cc. of the liquid, which gave about 35-36 grams total chlorine, while only 30 c grams had been used.

If the quantity of silver, and consequently also of chlorine, used is supposed

to be 100 for cold bleaching, so gave the hot bleaching 96, equals 4 per cent. less through formation of chlorate.

The chlorate-chlorine can also, as mentioned before, be directly determined. There was found in 100 cc. used bleaching liquid, 0.0538 grams chloride of silver = 0.0133 grams chlorine. For 21 litres of the liquid 2.79 grams chlorine and 27.7 grams chlorine were used in this case, a loss of 10.1 per cent. through the formation of chlorate.

The quantity of the chlorate-chlorine can be overlooked at the parallel experiment with cold bleaching. The percentage of chlorate in the normal chloride of lime is minimal, about 0.25 per cent., mostly nearly 0; only once 0.9 per cent. of chlorate were found in an old sample of chloride of lime.

The loss of active chlorine through the formation of chlorate is consequently about 10 per cent. The temperature of 40 degrees (C.) is therefore already somewhat too high. The loss of chlorine at about 30 degrees (C.) would be very unimportant as the velocity of the transforming into chlorate, as before mentioned, is doubled for every 7.5 degrees (C.) The bleaching liquid could consequently be heated up to this temperature without any danger of loss.

The reduction capacity of the hot and cold bleached pulp gave nearly the same results, i.e., for cold bleached 2.77, for hot bleached 2.86. From this can be concluded that the hot alkaline bleaching is absolutely harmless to the pulp. It is still to be determined if the better quality of the pulp in comparison with the pulp bleached in acid solutions, balances the loss of chlorine.



—Rapid Motor Vehicle Company, of Pontiac, Mich., are installing a complete clam shell bucket coal handling crane system, manufactured by the Northern Engineering Works, Detroit. They have also installed a Northern 10-ton crane in their power station.

PROCESS IN SULPHITE MILLS.

The following are the general instructions given to the International Paper Company's superintendents of sulphite mills.

Subject.—The cooking process for sulphite pulp and matters relating thereto.

1. Owing to variations in the character of the wood, composition of the acid, steam pressure, etc., it is impossible to specify any definite instructions for the cooking of sulphite, which will apply to all cases, and experience alone must be the guide as to the best method of procedure in case of "shut downs," "wet wood," "dry wood," "low steam," "weak acid," "break downs," "cold digesters," etc

At the same time there are certain standard methods of procedure which apply to all cases, and certain general principles which apply to all cases, should be followed as closely as possible.

These are as follows:

2. **Filling**—Fill the digesters with chips, allowing the chips to run in until the digester is full. Next run in the acid and relieved liquor in the correct proportions until the acid comes to within about 4 feet of the neck. Poke the chips around the top and sides of the digester and add more chips as they settle down, so that finally the digester is full to the top and no more chips can be put into it. Close the digester and begin to steam.

3. **Steaming**—Steam up slowly at such a rate that it takes not less than two (2) hours or more than two and one-half (2½) hours to bring the pressure up to 50 pounds.

4. **Relieving**—When a pressure of 50 lbs. is reached, open the relief valve a very little until liquor is coming, (as judged by the sound and feeling of the relief valve), and a temperature of 95 to 100 degrees C. is shown by the thermometer. This temperature should be reached after 2½ to 3 hours steaming. Continue relieving from the top for one

hour, during which the temperature and pressure will rise slowly and gradually. (See table under section 5).

Then shut off the top relief valve and begin relieving liquor gently from the side of the digester. Continue this for two hours. Within this period the temperature and pressure will continue to rise slowly. Up to this point all the relieved liquor is passed through a cooler and run into a separate relieved liquor tank. It is relieved direct and not through a separator. After relieving for about two hours through the side, shut off this side relief and relieve through the top carefully until the cook is ready to blow.

For about 30-45 minutes before the cook is ready to blow relieve all the gas possible to the reclaiming tank. All the gas so relieved will be saved and will not be blown out with the pulp into the blow-pits.

5. **Cooking**—During the cooking by these methods the temperatures and pressures here given should be followed as closely as possible.

2 hours	...	45-50 lbs.	...	80-90°C.
3 hours	...	50-55 lbs.	...	100-105°C.
4 hours	...	55-60 lbs.	...	110-125°C.
5 hours	...	60-65 lbs.	...	130-135°C.
6 hours	...	65-70 lbs.	...	140-145°C.
7 hours	...	70-75 lbs.	...	150-155°C.
8 hours	...	75-80 lbs.	...	155-160°C.

The cooking should be so performed that the strength of the liquor is kept well up until the last. This is accomplished by carefully managing the steaming and relieving as above described. This is especially important when cooking with an acid low in lime.

6. **Testing**—Test the strength of the liquor from the digesters by means of iodine after cooking for 2 hours, 5 hours, and, finally, the cook ought to be ready to blow, when the liquor tests between 0.4 and 0.5 per cent. SO_2 , and not too dark in color. It should be "blown light."

(To be Continued)

The Pulp ^{AND} Paper Magazine of Canada

Vol. 8. —No. 10.

TORONTO, OCT., 1910

{ Canada \$1 a Year
{ Single Copy 10c.

Pulp and Paper Magazine

A monthly magazine devoted to the interests of Canadian pulp and paper manufacturers and the paper trade.

Subscriptions: Canada and British Empire, \$1.00 per year. United States and Foreign, on account of postage \$1.50 per year.

The Pulp and Paper Magazine is published on the second Tuesday of each month. Changes of advertisements should be in the publishers' hands not later than the 1st of the month, and, where proofs are required four days earlier. Cuts should be sent by mail, not by express.

BIGGAR-WILSON, Ltd.

PUBLISHERS.

Offices, Confederation Life Building,

Toronto, Canada.

RECIPROCITY.

There is every probability of another revision of the tariff of the United States, and it is likely that the next overhauling will be done by an expert tariff commission, and not by the see-sawing of the various industrial interests acting upon Congress. That this revision will affect many commercial and industrial interests in Canada, there is no doubt. That it will also affect the commercial relations of Canada and Great Britain is also certain. These two considerations call for more than ordinary caution, even in entertaining, much less rashly acting on, proposals for reciprocity now being put forward.

The United States has traveled a long way since the reciprocity treaty was negotiated in 1854, and denounced at the instance of that country a dozen years afterwards. To-day the United States has reached a point nearly analogous to that reached by Great Britain when free imports were required by British manufacturers in order that foreign trade might further develop. If United States foreign trade in manufactured goods is to expand henceforth, a number of materials must be brought in for those industries at a lower rate of duty, if not absolutely free. It happens that some of the most important of these materials—such, for example, as pulpwood, pulp, lumber, grain, meats, minerals; etc.—are only to be had cheaply in Canada. These materials are wanted from Canada because the United States resources have been depleted, or at least become too high in price for future development, in competition with other countries. If Canada is to become an industrial nation the problem is whether this country is to repeat the history of the United States in the exhaustion of her own resources, and hasten the process by reckless export of raw materials that would go to build up the export trade in United States manufactures and cut off our own.

Our tariff relationship to the United States is likened by the "Canadian

Milles' to two settlements of people living on opposite sides of a river, and each owning half of a bridge, the sole means of traffic across the river. If the people on the south shore impose a charge of \$2 on each person who comes across to sell, while those on the north shore only charge \$1 to those who come across from the south, what will be the effect on the trading between them? Fortunately, Canada is not limited to trade with the United States, but the toll-bridge may be a useful illustration for those who think that any sort of reciprocity treaty with the United States must be of commercial benefit to Canada. If there is to be an unrestricted reciprocity treaty with the United States there must first be an equalization of tariffs, for the plain reason that, with a Canadian tariff so much below that of our neighbors, if trade is unrestricted between us the imports to the American Continent would come through Canadian cities because of the lesser duties, and New York, Boston, Philadelphia, San Francisco, etc., would lose their over-seas commerce. Are American financial and commercial interests likely to allow Montreal to be built up at the cost of New York? On the other hand, if Canada hands over its fiscal policy into the keeping of the United States, the loss of her political independence will follow just as certainly as night follows day. All honor to those on both sides of the line who desire to see good-will increased between the two peoples but let us not be blind as to the meaning of giving up unfettered control of our own fiscal policy.

The "Canadian Textile Journal" looks on the situation in this light:

With a tariff against Canadian manufactures three times as high as the Canadian tariff against like goods from the United States, and with a tariff against Canadian farm products twice as high as ours against the United States farmer, that country is dominating this market more and more in both manufactured goods and farm products. If a tariff is an unfriendly relationship between two nations so situated, upon what ground will the United States approach Canada for reciprocity, seeing that their offence against us is twice as grievous as ours against them? If, however, a tariff is a purely domestic concern, to be raised or lowered without regard to the effect on other nations, then we have to ask ourselves what we have to gain by concessions which will add to the handicap already imposed on both Canadian farmers and Canadian manufacturers. The existing tariff relationship is a standing repudiation by the United States of the spirit of reciprocity on the first hypothesis. On the second hypothesis of domestic advantage, only a sweeping reduction of the United States tariff to the level of Canada's could justify an unlimited reciprocity, from the Canadian standpoint. If the Republican plan of a permanent tariff commission is carried out, there is little chance of such a general tariff reduction being carried out by treaty, but rather the gradual readjustment of the tariff in detail, because the commercial relationship of the United States with other countries is more important than with Canada alone. Then, again, tariff reform in the United States is now a political party issue. Already the concessions made by the Canadian Government have the appearance of an

effort on this side to help the Republican party out of a hole. Suppose, now, that the people of the United States have determined to end the Republican régime, will not the pending negotiations be construed into a move to influence the domestic politics of the United States? There is much political unrest in the States and many thinking men fear that their country is heading to financial and political disorder, due not alone to tariff agitation. The present is, therefore, the time for a wise neighbor to stand aloof and await developments, and the Canadian administration that dips its ladle into this pot of soup will get its tongue burnt.

It does not follow from this that the Canadian people should not appreciate the present friendly attitude of the American people. The million or more of Canadians who have made the United States their home and the million or more of United States citizens who are making Canada their home are each an educational force for the deepening of goodwill between the two nations, and the generous and hearty way in which so many leaders of thought have entered into the plan of endeavoring to perpetuate the hundred years of peace should be appreciated, especially by Canadians. There may be sound reasons against reciprocity in trade, but there are absolutely no good reasons against reciprocity in good-will. This mutual esteem and respect will be best promoted if Canada grinds its own grist and leaves its neighbor to plow his own furrow. Neighbors usually get along all the better if each neighbor keeps his nose out of the domestic affairs of the other.

Canada desires to trade with the United States to the largest extent consistent with its own development towards nationhood; but Canada cannot consent to emasculation.



DEVELOPMENT OF CANADA'S PULP AND PAPER INDUSTRY.

The Pulp and Paper Magazine, in the first year of its issue, predicted that within a few years Canada would be one of the foremost nations in the pulp and paper industry. The prediction was based on the natural advantages of Canada: first, in the possession of immense areas of spruce and other pulp woods; second, in the enormous waterpowers available and as yet unutilized in various parts of Canada; and, third, in the superior knowledge and experience of the native Canadian people in wood craft and their capacity for adapting themselves to the industry. This prediction is being fulfilled, though not perhaps as swiftly as was anticipated.

A brief review of Canada's progress in this field of industry will be interesting just now when questions of trade and tariff are being canvassed afresh.

Beginning with the raw material we find that in 1890 the exports from Canada of wood for pulp amounted to \$80,005, of which \$22,808 went to Great Britain and \$57,197 to the United States. By 1900 this export amounted to \$902,772, of which \$38,370 went to Great Britain, \$864,077 to the United States and \$325 to other countries. In 1909 Canadian exports of wood for pulp had grown to 794,986 cords, valued at \$4,356,391, of which practically all went to the United States.

The record in wood pulp is more striking. In 1890 Canada exported \$168,180 worth of pulp of which \$460 went to Great Britain, \$147,098 to the United States and \$20,622 to various other countries. By 1900 the export reached \$1,806,016, of which \$562,178 was taken by Great Britain, \$1,193,753 by the United States and \$60,085 by other countries. In 1909 the export had reached the following figures: total Canadian pulp exported \$4,306,929, taken by various countries as follows: Great Britain \$1,084,720, United States \$3,064,879, Argentina \$3,928, Belgium \$33,880, China \$3,350, Cuba \$2,680, France \$83,590, Japan \$12,604, Mexico \$16,366, other countries \$932.

That this progress has not been spasmodic will be evident by tracing the exports from year to year. In 1895 the export of pulp amounted to \$590,879, in 1898 it reached \$1,210,923, in 1900 \$1,816,016, in 1903 \$3,150,943, in 1906 \$3,478,150 and in the years intervening between these periods there was a growth in every year except 1904, the year 1907 being only a nine months official year.

Equally significant is the progress made by Canada in the export of various manufactures of which paper and pulp are the raw materials. Without going into details the advance of Canada in this field will be indicated by the following figures: In 1895 our exports of books, periodicals and other printed matter were \$85,981, in 1900 \$178,731, in 1905 \$272,976 and in 1909 \$400,305, there being a fairly regular growth from year to year.

Our exports of paper were considered too insignificant to be classified in these earlier years, but it is enough to show

the development of Canada as a paper making and exporting country to mention that the total exports of paper increased from \$1,811,250 in 1905 to \$3,523,816 in 1909, that is practically doubling in four years.

Of course the general trade of Canada has expanded in these years and as population has increased we would expect the import trade would also expand with the growth of the consuming population.

But the fact that our imports of pulp, paper and the various manufactures of the same have not increased in nearly the same ratio is proof of the momentum Canada has gained in these industries.

In 1895 our imports of books, periodicals, stationery and printed papers amounted to \$1,101,525, in 1905 they were \$2,434,756 and 1909 \$3,498,868. In paper and other paper manufactures our imports that year had nearly reached the million dollar mark and in 1909 they were \$3,656,279. This shows a large increase but most of this increase is due to the importation of special kinds of paper used by our expanding industries and not yet made in Canada in sufficient quantities, and in some instances not at all. In the staple lines of paper the imports have been generally stationary or on the decline in the last five or ten years, showing that the home manufacturers are making great progress not only in the quantity but necessarily in the quality of their output.

It is only necessary for the further expansion of the Canadian pulp and paper industry in the markets of the world that our legislators should understand that the primacy in these industries depends on the possession of the raw materials in sufficient quantities and in accessible localities. We have the ag-

gregate quantities enough to supply the world, but the proportion of this which is cheaply accessible is indeed limited, and since the reckless destruction of the forests has brought the United States to the verge of famine in raw material and to the jeopardy of its best waterpower, it is essential that the forest resources of Canada should be safeguarded. With proper foresight in this regard there is no reason why Canada will not lead the world in the supply of pulp and paper and in many of the allied industries.



SITUATION IN NORWAY AND SWEDEN.

— —

A good deal of comment has been made from time to time upon the somewhat perplexing state of the pulp and paper export trade in Scandinavia. On one hand one hears the cry of overproduction. Yet Sweden's paper shipments to Great Britain this year have been considerably less than last year. In pulp, too, Norwegian makers are refusing to take orders for future delivery, believing, no doubt, the prices will be raised materially before very long. Yet while prices of Norwegian and Swedish ground wood pulp have been too low to allow of due profit to the producer, this continent has been crying aloud for enough pulp to obtain its absolutely necessary supply of news print paper. And the question is asked: why did not the Scandinavian pulp manufacturers seize the opportunity which was presented by the combination of very keen demand allied with low water which Canada and the United States experienced during the past summer? One explanation of the

tangle in which the pulp trade in Scandinavia seems to find itself at present is that the industry is overcrowded with mills and that their large number with the excessive competition to which this gives rise is the root of the trouble rather than any special overproduction of pulp.



TECHNICAL EDUCATION.

Pulp and paper manufacturers are not among those least interested in the development of a wide and rational scheme for the greater industrial efficiency of skilled workmen and mechanics throughout the Dominion. Farsighted men for a long time past have seen the absolute necessity for a comprehensive system of technical education if the Dominion is to make headway or even hold its place in the race for commercial supremacy with other nations. The case of Germany is one in point. In the matter of natural resources, Germany is far behind several other countries with which it is a competitor in the world's markets for manufactured goods. Yet, partly or chiefly on account of the thorough scientific training its government has seen fit to give the people, that country has forged ahead in the most extraordinary manner along certain lines. Scientific accuracy of work, and the economies resulting therefrom, are the chief causes of this rapid progress.

For a long time, the Dominion Government hesitated to formulate any policy to remedy the serious lack of all that makes for economy and skill in manufacturing processes in this country, the excuse or explanation given being that all branches of education, under the

British North America Act, properly came under provincial jurisdiction and that it would be neither right nor good policy to interfere with that arrangement. Under the energetic leadership, however, of Hon. Mackenzie King, it was realized that the Dominion Government, without trespassing on the rights of the provinces could do much to start the machinery in motion for enabling Canadians to enjoy the important advantages of trained industrial skill. A commission was appointed, therefore, whose duty it is to travel from one end of the Dominion to the other, as well as in other countries, for the purpose of investigating and taking evidence from all classes of people as to their special needs in this regard.

A few days ago the Commission held sessions in Toronto and obtained the views of several manufacturers as well as educational authorities. The object of the Commission is not to formulate educational schemes for the provinces, but to submit a general report, embodying such recommendations as are found advisable after the enquiries are completed.

The Canadian Manufacturers' Association is deeply interested in the progress of the work, which is not to be wondered at, seeing the importance of the question to the captains of industry. At the Toronto hearing George A. Howell, chairman of the technical education committee of the C.M.A., and well known in the pulp and paper trade, said that his committee took a very active interest in the technical school of the city, visiting it frequently and offering a number of prizes. There was a

close relationship between the technical schools and the manufacturers' associations. There had always been a scarcity of skilled labor in many trades and in many cases it had to be obtained outside of Canada. He suggested that the technical schools in the various towns should take up work along the lines of local industries.



The Canada Power and Paper Company, Toronto, notice of whose incorporation with a capital of \$10,000,000 was given last month in these columns, purposes to build a large plant for the manufacture of pulp, paper and carbide on the Saguenay River, close to the Quebec and Lake St. John Railway. Mr. William Mackenzie of the Canadian Northern is closely connected with the scheme. Large quantities of good pulpwood exist in the neighborhood of Lake St. John, and near Chicoutimi on the Saguenay River there is a waterpower which, it is claimed by engineers, is capable of producing between 150,000 and 200,000 horsepower. A small amount of development work has already been done on the property, but active operations are not likely for some time to come.

Among the powers granted to the Canadian Arctic Whaling Company, Limited, Vancouver, capital \$500,000, and the Canadian Holding Co., Ltd., Vancouver, which were recently granted letters patent by the British Columbia government, is that of carrying on business as sawmill and pulpmill proprietors.

The Foley, Rieger Pulp & Paper Company, Limited, Thorold, has now received its charter. Capital \$50,000. It is authorized to make wood pulp and all kinds of paper, to develop electric power, etc., E. P. Foley and Jos. Foley, of Thorold, and H. M. Rieger and H. A. Constantine of Niagara Falls, N.Y.

QUEBEC COPPER PYRITES IN THE PULP TRADE

There are scattered through Quebec many deposits of copper, and though a large percentage of these have turned out to be "pockets," the occurrence of these ores is so frequent that it is held by some experts to be indicative of large deposits yet to be discovered. Indeed, some of these—as for instance those at Eustes and Capelton—have been operated for many years profitably, while a new deposit that may prove extensive has been found in Weedon.

This is the subject of a report by Alfred W. G. Wilson, Ph. D., in the summary report of the Mines Branch of the Geological Survey, Ottawa, recently issued.

Dr. Wilson suggests the application of these ores to the production of sulphite pulp, and gives the following interesting information on the possibilities of the industry for that province:—

It is only within very recent years that many of our Canadian commercial organizations have recognized a principle that is almost fundamental to successful operation—that the profits which accrue in any enterprise are greatest when the same organization markets finished products—the source of raw material as well as the manufacture being controlled by the same organization. Where raw material or partially manufactured products are handed over to other firms for final treatment a very considerable portion of the total profits on the various operations is lost to the producer of the raw material, and incidentally the cost of preparing manufactured articles for the market is greatly increased. In practice it is not always possible to completely carry out this principle, but there are in Canada many industries where the recognition of the principle and its application within reasonable limits would result in many benefits not only to the properties most immediately concerned, but also to the country as a whole.

Where the diverse nature of manufactured products requires materials of different kinds derived from many different sources it is manifestly difficult, though not impossible for any one industrial organization to control both the sources of supply and the processes of manufacture. In such cases it is obvious, however, that co-operation between two or more great industrial organizations would undoubtedly lead to economies in production costs. This is especially true when the waste products of one industry are the raw material of another, and this happens to be the relation which exists between the copper and sulphur mining industry and the sulphite pulp industry.

During the summer of 1909, when driving through various sections of the province of Quebec, covering a total distance in excess of 2,000 miles, the writer was particularly impressed with the very large amount of spruce pulpwood that was being prepared for shipment to the United States. The average price paid for this wood was about \$7 per cord for wood free from bark delivered at the railway.

So great is the demand and so energetically have the farmers and others responded to this demand that large areas have been completely denuded of valuable trees. In a few localities some local residents have gone so far as to cut large spruce trees which were growing on the road allowance—these trees were actually the property of the municipality. In addition, much pulpwood has been cut on Crown lands. Statistics showing the total quantity of pulpwood exported from the province of Quebec during the year 1909 are not available; it will probably total nearly 1,000,000 cords.

It has recently been announced that it is the intention of the Quebec government to prohibit the export of the pulpwood from the Crown lands of the provinces. This action is to be taken partly

for the purpose of conserving the pulpwood resources and partly with the object of stimulating home manufacture. While it is very probable that the first effect of this legislation will be to greatly reduce the amount of wood exported, it seems altogether probable that eventually the home manufacturing industry will be greatly increased. No data are at hand to show the present Canadian home consumption of pulpwood and wood pulp. The tables on a previous page show that the amount of imported wood is small—though they do not indicate whether this pulp is chemically or mechanically prepared.

If anticipations are realized and a large home manufacture of wood pulp is maintained, at least a portion of this wood pulp will be chemically prepared. One of the most important of the chemically made pulps is that known as sulphite pulp. In the preparation of sulphite pulp by the methods at present in vogue in Canada about one ton of raw sulphur, costing about \$22 per ton, is required for every 10 tons of sulphite pulp. It is possible, however, to prepare the sulphur dioxide required by this process from pyrite, or other ores containing a mixture of pyrite and chalcopryite. In utilizing pyrite ores for this purpose some practical difficulties have been encountered because sulphur trioxide is usually formed at the same time as the dioxide. In chemical works the presence of the trioxide is more desirable than otherwise, but in pulp manufacture it is injurious. Commercial methods for preparing the pure dioxide from pyrite are available. In the United States there are two large mills in operation where ores of this character are being utilized for this purpose. Thus, there seems to be no reason, so far as the actual successful operation of a process is concerned, why Quebec sulphide ores could not be used in Quebec as a source of supply of sulphur for the preparation of sulphur dioxide to be used in the manufacture of sulphite pulp. There are also several plants in successful operation

where sulphur dioxide is extracted from smelter fumes for the purpose of making sulphuric acid. If, in the future, conditions should warrant the erection of a smelter in the province of Quebec, its location in a locality where the sulphur dioxide fumes could be utilized for other purposes would be in the interests of economical operation.

While it is not possible to give a detailed statement of actual operating costs, the following data, which are only tentatively submitted here, will serve to illustrate the possibilities of economical operation in this direction.

One cord of spruce pulpwood free from bark will produce about 2,350 pounds of mechanical wood pulp, worth, on the New York market, about \$14 per ton. The same cord of pulpwood will produce about 100 pounds of sulphite pulp worth approximately \$40 per ton. Hence, one cord of spruce pulp, which was worth \$7 per cord on the railway in Quebec in the summer of 1909, when manufactured into mechanical pulp was worth \$16.45; if manufactured into sulphite pulp, it would have been worth \$22. At the present time there are no methods in use for conserving the large fraction of the pulpwood which is lost in the waste liquors from the sulphite pulp process; doubtless they will be discovered in the future.

To convert a cord of pulpwood into sulphite pulp about 100 pounds of sulphur are required, worth approximately \$1.10. Assuming an ore containing 40 per cent. recoverable sulphur, 0.125 tons of ore would furnish the equivalent amount of sulphur. At a market price of 10 cents per unit, the value of the sulphur content of this weight of ore would be about 53 cents¹, assuming that no sul-

¹Note that if the ore contains 40 per cent. recoverable sulphur, its sulphur assay will probably be between 42 per cent. and 43 per cent., and payment is usually made on the assay sulphur, not on the recoverable sulphur.

phur trioxide is formed. In practice enough additional ore must be roasted to balance the sulphur trioxide losses. The cost of this additional quantity of ore and the cost of removing the trioxide must be taken into consideration. Exact data as to these costs are not available, but they will be relatively small.

Such additional costs as may accrue because of the more bulky nature of the ore, and because of the additional handling required, can also be paid out of the balance, in favor of using pyrite. As all this work can be done very cheaply and economically by mechanical means, there will still be left a very large margin of profit in favor of pyrite ore as against raw sulphur. Moreover, the cinder residues, after roasting, can all be utilized. If there is a copper content it can be recovered by leaching. The iron content can be used directly, or after briquetting, in a variety of ways. Ferrosilicon can be produced in an electric furnace—the market for this product is, however, overstocked at the present time). As a source of iron ore these residues will always be in demand. Hence, their value should be more than sufficient to pay the additional charges involved in the handling of pyrite ore and its residues when extracting the sulphur content by a roasting process. If the sulphur content of the ores can be utilized nearer their point of production, there will also be, for the miner, a saving in transportation costs.

If subsequent investigations should warrant the establishment of a smelting industry primarily to recover the copper and precious metals in the ores, a very considerable portion of the waste sulphur dioxide gases could be economically utilized in a sulphite pulp mill. The relative capacities of the two plants, and the character of the ores will determine whether the whole of the sulphur could be thus economically conserved.

A sulphite pulp mill of 100 tons per day capacity could only utilize the sulphur fumes from about 25 tons of ore containing 40 per cent. recoverable sul-

phur, or about 50 tons of ore containing 20 per cent. recoverable sulphur. A smelter of 50 tons daily capacity is, of course, a small affair. A large smelting industry would probably have to provide other means for utilizing a portion of the otherwise waste sulphur. In some localities, notably Tennessee, this is done by manufacturing sulphuric acid, the acid in turn being utilized for the manufacture of fertilizers. At the present time it is improbable that the Canadian market can absorb an increased output of acid. It is also an expensive product to transport and it is very doubtful if an additional output from Canadian centres could be marketed at a profit. It is probable, however, that in the near future the farming population of the Eastern Townships of Quebec, as a whole, will begin to appreciate the value of modern scientific methods of farming. When the recognition comes there will be a large home market for mineral fertilizers. An enterprising industrial corporation will usually find it advantageous to work up a home market for its by-products and to create an active demand by a judicious educational campaign. At the present time both Ontario and Quebec offer a very promising field for a campaign of this sort.

It is probable that in the near future economical commercial methods will be devised whereby sulphur can be extracted from the sulphur dioxide by-product gases of a smeltery. Certain laboratory reactions are already known which afford hopes that this expectation will be realized. Sulphur dioxide gas cannot be shipped in quantity economically even in liquid form in iron cylinders, the combined weight of liquid and container being nearly the same as that of an equivalent quantity of raw ore, while it is more difficult to prepare for transportation because the gas has first to be condensed under pressure. It can probably be handled economically in liquid form in tank cars. Sulphur can easily be handled, and possibly can be produced at

less cost than the natural sulphur now on the market.

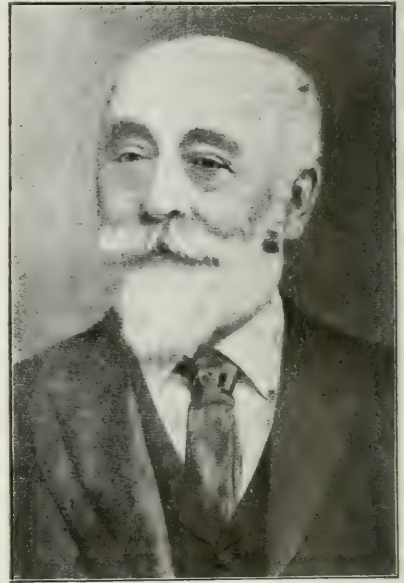
In conclusion it may be stated that if a portion of Quebec copper-sulphur ores is utilized in the district where they are produced for the manufacture of sulphite pulp or for any other purpose, the mine owners will not be the only persons benefited. At the present time a very considerable percentage of the value of the ore is paid out for transportation, chiefly through a foreign country. Most of this will be saved: not, however, at the expense of the railways, because the higher freight rates on the finished products of a sulphite pulp mill will more than compensate for the small decrease in freight on raw ores. A large portion of the increased value of the material, when marketed as a finished product, will go to the mill operatives. This in turn will benefit that portion of the population which is engaged in producing food products. In brief, under present conditions, a very large percentage of the value of the finished products made from raw materials produced in Quebec, benefits other districts, and people not residents of that province; the imperative demand which exists for products which are being manufactured from these raw materials ensures a large and ready market if these materials are converted into finished products in their home district.



HON. J. D. ROLLAND.

The paper trade is to be congratulated upon the honor it has received in the appointment of Hon. J. D. Rolland as president of the Hochelaga Bank. Mr. Rolland is well and favorably known throughout the Dominion as a paper manufacturer, with which industry he has been connected all his life, having commenced his career in the extensive book, paper and fancy goods business established by his father as long ago as 1842. He is president of the Rolland

Paper Co., which has its mills at St. Jerome, Que., and is largely interested in the Northern Mills of Ste. Adèle. Mr. Rolland does not confine his attention solely to the paper trade. He takes an active part in the work of the Canadian



Hon. J. D. Rolland.

Manufacturers' Association and was at one time president of that body. He is also connected with the Montreal Board of Trade and Chambre de Commerce, as well as being a director in several corporations. He takes a keen interest in all matters concerning the public good, and his fellow citizens in general, as well as the paper trade in particular, feel a keen interest in his welfare.



Alex. McIvor, a Scotchman working at the Miramichi Pulp and Paper Mills, Chatham, N.B., fell from the acid tower seventy feet and was instantly killed. He was fifty years of age. The superintendent of the mill states he had no business on the elevator from which he fell.

THE PAPER INDUSTRY IN INTERNATIONAL RELATIONS

The Toronto Globe is to be complimented on the letters it is publishing from M. O. Hammond, its special correspondent, now visiting New England, gathering information on the question of the trade relations of Canada and the United States. Mr. Hammond sees the economic development of the continent with a broad range of vision, and reports facts as he finds them without concealment and without giving a conscious twist.

One of Mr. Hammond's letters deals with the pulp and paper question and is so interesting that we quote it in full. Writing from Boston, he says:—

Canadians travelling through the northern latitudes of the eastern provinces have usually accepted at face value the political orator's praise of their "inexhaustible timber resources." To journey for days and see nothing but spruce trees seems almost proof that the last one will never be cut. Then some day the traveller sees a flotilla of small logs being towed down a stream toward the waters of the St. Lawrence. If he follows he will likely see them land in one form or another in some paper mill south of the boundary. That is the tragedy of "our inexhaustible timber resources," for Uncle Sam, having pretty well stripped off his own spruce trees, and having a great appetite for reading matter, particularly newspapers, is helping himself to the raw material across the line.

A Double Tragedy.

It is a tragedy in two senses. It is a blow to national pride to see the raw timber taken away and the manufacturing done in a foreign country, often by people who left Canada supposedly to better themselves where there was more employment. It is an economic tragedy, for it feeds an industry in New England that ought to be in the country which

has the spruce and the waterpower and the labor—the market will last as long as people and presses run.

A Complicated Situation.

Realizing the economic and national injustice of this condition of affairs, there has been an agitation in Canada for years to secure for the land that grows the trees the right to make them into paper. The situation, however, is complicated. Part of the forests are on private lands, and the remainder are lands owned by the various provinces—whose governments have a variety of timber policies and who cannot deal directly with a foreign government interested in the question. It has come about, therefore, that, following the example of Ontario, the Canadian provinces possessing pulpwood, except New Brunswick, have prohibited the export of such wood when grown on Crown lands, and New Brunswick now has the matter under consideration.

Canada Has the Whip Hand.

This therefore is a question which influential United States interests like to see adjusted in any tariff or trade negotiations with Canada. As it stands, Canada has the whip hand. It has the forests and its provinces have large rights of control of the timber. If Uncle Sam wants to be real nasty he will only spite himself, while if Canada could secure a good paper market it would be a permanent outlet, and the business of reforesting the Laurentian area would enable the industry to be carried on ad infinitum.

Demand of Publishers.

There is a strong demand on the part of American publishers and job printers that news print paper be placed on the free list. The paper interests on this side have always opposed this, and even to-day an effort is made to minimize the

importance of the Canadian pulpwood for their needs. For example, it is stated that out of the 1,200,000 tons of news paper used in the United States yearly only 53,000 tons comes from Canada, and that, in view of the restrictions by Canadian provinces against the exportation of pulpwood cut on Crown lands, the paper interests here are looking elsewhere for supplies. For example, a United States Government official has just returned from Newfoundland, where he looked into the question of a possible supply of pulp. Another move is the series of experiments under way to make the cheaper kinds of paper out of other woods than spruce and out of certain grasses.

Want Mann Law Passed.

The paper consumers in the United States meantime are in a rather bad way, for their country has imposed a retaliatory duty of \$1.67 per ton on mechanical pulp from provinces which prohibit the exportation of pulpwood cut on Crown lands. In spite of this the importations of mechanical pulp increased since the passage of the Payne law, showing that the spruce forests of Canada are becoming increasingly important to this country. The hope of the paper consumers now is that Congress, at its December session, will pass the Mann law, removing the paper duty on imports from provinces which remove the restrictions on the exportation of pulpwood. They also hope that a satisfactory solution of the whole thing may be reached in the proposed negotiations between Ottawa and Washington.

Whatever the paper kings of Holyoke may say, however, paper is essentially an industry indigenous to Canada, and any treaty that would compromise the principle that Canadian spruce forests should be made into paper at home would be unpopular as well as unjust.

The Retaliatory Duty.

The publishers of the United States made a temporary gain in the last tariff revision by getting the paper duty reduced from \$6 to \$3.75 per ton, but this

was spoiled by the retaliatory duty of \$2 on paper from provinces that imposed restrictions on the export of pulpwood, pulp or paper. This offset the reduction almost wholly, New Brunswick being the only province with pulp forests that it excepted from the retaliatory duty. Even as it is, Canada supplies one-fifth of the pulpwood used in the United States, and the proportion is bound to increase constantly.

A peculiar feature of the recent reports of importations of mechanical pulp and news print paper from Canada is the fact that a considerable quantity of it is still coming from wood cut on Crown lands, and is paying the retaliatory duty specified in each class. It is said, however, that the paper mills of New England are doing their best to arrange for supplies of pulpwood from privately owned lands, so as to avoid the retaliatory duties. There are still some spruce forests in Maine—the pine tree State—while the middle west draws on Minnesota and Wisconsin.

Quebec's Attitude.

The feeling that has been engendered in Quebec over the matter is reflected in the ordinance adopted by their government. This prohibits the export of pulpwood cut on Crown lands, and is so rigorous that it applies not only to wood cut on timber limits by the owners of the timber, but also by intending settlers, from whom the greater part of the supply of pulpwood for exportation had previously come.

Blame Speaker Cannon.

Speaker Cannon is blamed by paper consumers for the vexing conditions under which they labor under the tariff. A story is told of how, when one of their bills was being pressed in Congress, the publishers by a concerted effort deluged the Speaker with telegrams one day demanding consideration for their bill. Herman Ridder, proprietor of *The New York Staats-Zeitung*, the instigator of the telegrams, called on Mr. Cannon

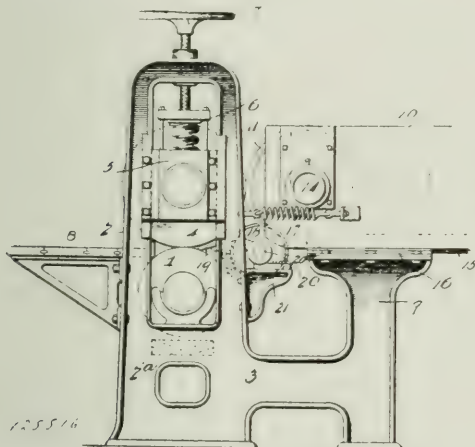
during the day. He found the Speaker very angry, and smothered in envelopes filled with despatches.

"More of your — dirty work," said the Speaker. "Yes, and I've got to open every one of them; I daren't burn them for fear there might be a good one among them."



PULP AND PAPER PATENTS

125516—Orville O. Robinson and Courtland T. Robinson, assignees of Frank M. Chapman, all of Fort Edward,



Wash. A feltless wet press for pulp making. It operates by a cylindrical mold in the vat with a kicker to force the pulp between upper and lower press rollers.

125535—The Fisher Save-All Co., assignee of John F. Fisher, both of Hinckley, N.Y. A pulp screening device combining a frame, a flow box having a low side supported on the frame in an elevated position, a receiving trough mounted on the frame in a low position, a set of independent removable elongated screen frames with screens engaging at their lower ends with the upper edge of the trough and at their upper ends with the low side of the flow box and arranged at an angle of approximately forty-five degrees to a perpendicular, a spray pipe adapted to discharge against the under

side of the screen, and means for moving the spray pipe backward and forward

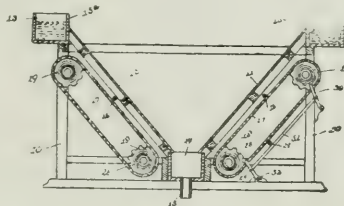


Fig. 1.

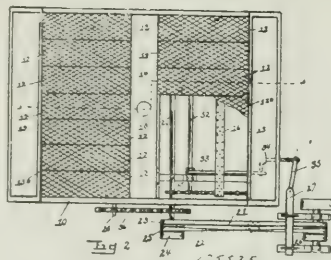
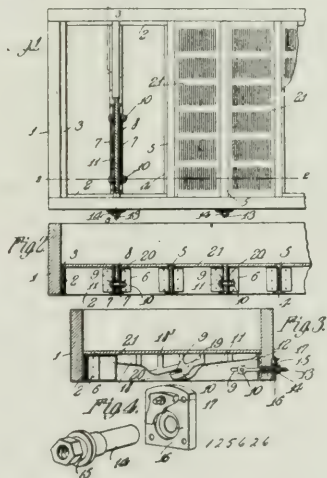


Fig. 2.

adjacent to the under surface of the screen.

125626—Marten J. Mollen, Appleton,

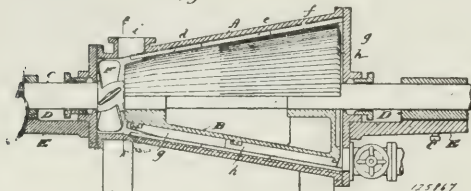


Wis. A pulp screen plate fastener.

125643—Edw. F. Parker, Fairfield, Maine. Method of charging pulp digesters. The method consists of charging the digester with wood and caustic soda or other like liquor with a relatively strong solution at the bottom and a relatively weak solution at the top of the digester and finally subjecting it to the action of steam under pressure.

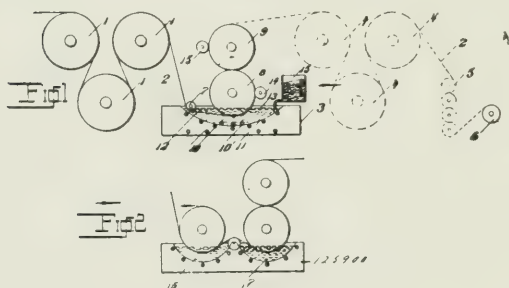
125867—Eugene O'Brien and Eugene O'Brien, Jr., co-inventors, both of Eau Claire, Wis. A pulp screening grinder

Fig. 1.



having the shell thereof extended back of its feed inlet to form a cylindrical chamber, and a propeller fast on the core shaft of the grinder within said chamber.

125900—Alexander W. Harrington, Brooklyn, N.Y. A process of making wax paper which consists in first treating the paper with a heated glutinous composition to fill the pores and interstices thereof, then immediately coating the



paper with a waxing composition whereby the heat of the glutinous composition assists in the distribution and spreading of the waxing composition.

125959—Lee C. Hascall, Boston, Mass., assignee of Otto Tobieson, Christiania, Norway. Paper making machine.

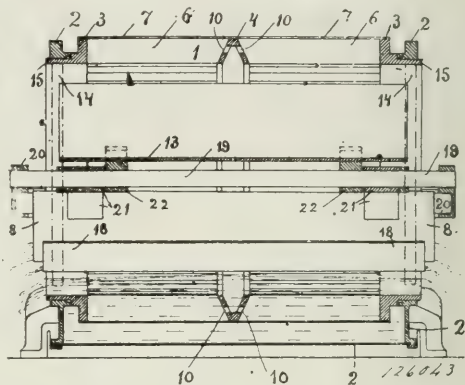
128192—E. Z. Taylor, London, Eng. Machinery for use in the manufacturing of conical tubes of paper or the like.

128249—R. P. Lowrey, New York, N.Y. Automatic roll paper cutters and printers.

128253—H. N. Moore, Vancouver, B.C. Processes of treating the bark of

birch tree, commonly known as birch bark.

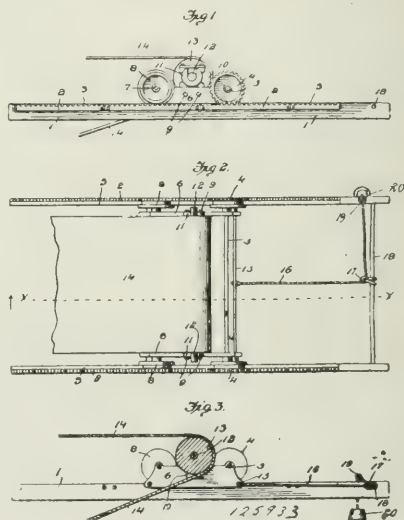
126043—Carl Arvid Johnson, Stockholm, Sweden. Rotating straining cyl-



inder for wood pulp.

126069—Harry S. Rinker, Woodhaven, N.Y. Paper making system.

125933—Wm. J. Trempe, East Rye-



gate, Vt. A felt tightener for paper machines.

128163—F. M. Chapman, Fort Edward, N.Y. Apparatus for treating ground wood and sulphate pulp. H. E. Tidmarsh.

QUEBEC SCHOOL OF FORESTRY

On September 15th, the new School of Forestry for the Province of Quebec opened its sessions. It is affiliated with Laval University and the lectures are given in special quarters at the University buildings in Quebec.

The number of students following the courses is 12. Besides these, 10 more students are working in the woods, under the direction of the Quebec Forest Service, to receive a preliminary training and it will only be after one year of such work that they will be admitted to enter the school. The students that are now following the lectures have been obliged to pass through the same course. It is believed that this sort of seminary will prevent a good many poor would-be foresters from entering the school.

The regular course covers two years. The programme of studies will embrace forestry in all its branches: silviculture, forest management, forest utilization, etc., mathematics, natural sciences and their applications, applied mathematics, forest law, construction of roads, bridges, dams, sawmills, etc. During the first term will be taught botany, forest botany or dendrology, review of elementary mathematics, surveying, reforestation, silviculture, forest mensuration or dendrotomy, forest regulations and forest laws and mechanical drawing.

An excellent museum is at the disposition of the school, that formed by the professors of Laval University. Besides the use of the library of the university, one of the best in America, a special fund has been allotted by the Quebec government for the creation of a library in the Department of Lands and Forests which is also available to the members of the school.

Regarding their training, the students are obliged to spend a year and a half in the Quebec forest service. The university has a large seigniori, well wooded, where excursions will be made repeatedly. The government has also a forest nursery at Berthierville, where

the students must spend three months during their preliminary year.

The professors for the first term are: Mr. G. C. Piché, chief of the Quebec Forest Service and director of the school, Mr. Avila Bédard, M.F., Alfred Mercil, C.E., assistant-director of the school, J. Bouffard, LL.D., M. Gastonguay, C.E., J. Guimont, Ptre., A. Garneau, Ptre.

Special lectures are to be given by outsiders, among which we may mention Dr. Gordon C. Hewitt, Dominion entomologist, and others interested in the lumbering and wood trade.

It is hoped that special interest will be devoted to the matter of hydraulics, and a specialist will be attached to the school most likely next year, so that the new school will have the right to call itself the Quebec School of Waters and Forests.

Each student is supposed to spend three months before the close of studies in a woodworking establishment: saw-mill, wood distillery or pulp mill, and to present a thesis on the subject chosen.

These should cover the field, but besides this there will be lectures by Mr. G. C. Piché, chief of the Quebec Forest Service, and who spent three years with the Belgo-Canadian Pulp Company, Shawinigan Falls. This gentleman proposes to the government that it should open a separate department for pulp machine work in the Technical School, now being erected in Montreal, with a branch in Quebec. It is also possible that one of the students will specialize in this line. We have Mr. Piché's assurance that everything possible will be done to promote the important pulp industry.



J. M. McConnell, Kingston, Ont., has been granted an injunction restraining A. C. Campbell, J. M. Campbell and G. F. Jones from removing the pulpwood from certain property they own near Sudbury, Ont. Plaintiff holds a mortgage on the property and contends that its value will not be sufficient to cover the mortgage should the trees be cut.

REORGANIZATION OF THE QUEBEC FOREST SERVICE.

The death of Mr. Chrysostome Langelier, superintendent of the forests rangers, and the creation of the Forest School have caused Hon. Mr. Allard to make a complete reorganization of the Forest Service of his Department. A complete separation has been made of all the exterior work and that to be conducted in the office: the Forest Service will be in charge of the exterior work, and will conduct the lumbering operations, explore the unsurveyed lands, classify the lots in the townships into forest and settlers' lands, etc. The province is divided into twelve districts, each administered by a forest agent having under him several forest rangers and student assistants. All reports are sent to the Chief of the Forest Service directly.

The forest agent is obliged to verify and control all the logging operations taking place in his district and to check the returns of each lumbering company. Each little sawmill or person purchasing lumber, pulpwood or other wood material is obliged to present an annual return of operations accompanied with the necessary affidavits.

Several expert scalers are employed to assist in cases of disputes. In each camp a shanty-book is provided, wherein the clerk will register the report of each crew; in the same book, the scaler is compelled by the law to enter his tallies, separating them according to roads, etc. These innovations will enable the forest officers to control rapidly and efficiently all the logging operations in their respective districts.

The force now comprises two forest engineers, the chief and his assistant, 12 forest agents, 40 forest rangers, 5 expert scalers and 10 student assistants.



The Canada Coating Mills, Georgetown, have now got the roof on their new extension.

W. H. ROWLEY.

Mr. W. H. Rowley, who last year acted as chairman of the Pulp and Paper section of the Canadian Manufacturers' Association, and who was also first vice-president of that organization has now been made president, the election having taken place at the recent convention in Vancouver. Mr. Rowley, who, as is well known, has an extraor-



dinary capacity for work, did much for the reconstruction of the mills after the disastrous fire ten years ago and when the late Mr. Eddy died in 1906 he was elected president and co-manager with Geo. H. Millen. Mr. Eddy's confidence in the man was also shown by his appointment of him as one of the trustees of the estate. As is well known the company is in a fine position to-day.



—The Powell River Pulp & Paper Company have received permission from the British Columbia Government to export six carloads of timber with a view to having investigations made as to its adaptability for pulp and paper making purposes. Owing to the strictly enforced law for the protection of timber, a special order was required.

PULP AND PAPER NEWS

The Appleford Counter Check Book Company will build a factory in Hamilton.

* * *

E. S. Munro of Wilson, Munroe Co., paper dealers, Toronto, left recently on an extended tour through Europe.

* * *

The Cauldwell Paper Company, Montreal, has appointed Hy. Thompson its representative for Toronto and Eastern Ontario.

* * *

J. C. Prescott's lumber and pulpwood property at Albert, N.B., has been sold to an American syndicate for about \$175,000.

* * *

The pulp mill of the Imperial Pulp & Paper Mills, Sturgeon Falls, Ont., is being worked to full capacity, the product finding a ready market.

* * *

Canadian Mills & Timber, Limited, Vancouver, capital \$1,000,000, has been incorporated to act as timber merchants and sawmill and pulpmill proprietors.

* * *

Good progress is being made on the building of the factory for the Georgetown Paper Company, which is expected to be in operation by early next year.

* * *

Chas. Reid & Sons, manufacturers of paper boxes, Hamilton, will establish a warehouse in Winnipeg, a large site for which has already been purchased.

* * *

Dr. B. E. Fernow, Dean of Forestry at Toronto University, has returned from an extended trip to Germany and Sweden. In Stockholm he attended the International Geological Congress.

W. J. Gage & Company, Limited, Toronto, manufacturers and wholesale dealers in stationery, books, etc., have been licensed to do business in British Columbia. J. A. Harvey, Vancouver.

* * *

At the convention last month of the Trades and Labor Congress at Fort William, the executive was urged to take action to have paper mills and other establishments operating twenty-four hours per day to provide three shifts of eight hours each.

* * *

Residents of Matheson, one of the new towns in Northern Ontario, are requesting the Ontario Government to take measures to facilitate the establishment of a pulp mill at Iroquois Falls. Plentiful supplies of pulpwood are available in the neighborhood but the cost of shipment by rail absorbs the profits.

* * *

The directors of the Laurentide Paper Company, owing to the increasingly satisfactory nature of its business, has decided to increase the dividend on common stock from 7 to 8 per cent. It is also stated that a bonus on stock is contemplated.

* * *

W. H. Rowley, president of the E. B. Eddy Company, Hull, has made definite announcement that, while the company contemplates establishing an auxiliary plant at some western point no agreement has yet been made with any city. The company's business in the West has shown large increases in recent years.

* * *

The Chicoutimi Pulp Company, Chicoutimi, Qué., has completed making some important extensions to its mills. The capacity of the plant is now 40,000 tons of dry pulp annually. The output goes largely to France and England, but large quantities, henceforth, will probably go to the United States.

The Georgian Bay Canal project has not been forgotten by any means. Sir Robt. Perks, the English capitalist, was again in Ottawa recently asking the government to guarantee a large amount in bonds. Hon. W. Pugsley stated that the government had not decided yet as to whether it would build the canal itself or give the work to a company. The canal, however, would certainly be built.

* * *

As a result of a recent trip through the Northwest by Jas. White, secretary of the Canadian Conservation Commission, it is likely the penalty for setting fires in the forests will be made more severe. He compares the punishment received by a man who sets fire to his neighbor's house or barn, with the comparatively small fine imposed on a camper or miner who through his negligence causes thousands of acres of valuable timber to be burned over.

* * *

The Don Valley Paper Company, Toronto, is devoting considerable energy to the manufacture of special lines of paper on account of the low prices to which wrapping papers have descended. It is meeting with encouraging success. At the annual meeting held recently Robt. Davies was re-elected president, J. G. Worts vice-president and manager, H. Jarvis secretary-treasurer, and Thos. Gain sales manager.

* * *

T. Loftus, a foreman at the Davy Pulp Mills, Thorold, has been arrested on the peculiar charge of trespassing on government property and interfering with government officials while discharging their duties. Representatives of the Foley, Rieger Pulp Company, having obtained permission to close the gates of one of the locks to enable them to con-

struct a flume and connect with the raceway, found a gang of Davy workmen under Loftus on guard, who refused to let the Foley, Rieger men close the gates. An altercation ensued, in which the canal officials took part, with the above result.

* * *

The latest development in connection with the Gordon Pulp & Paper Company, at Dryden, Ont., is that that company may be merged in a new corporation under the name of the Dryden Power Company, with a capitalization of \$1,500,000, and the principals of which are Messrs. S. Bonfield of Chicago, L. W. David of Vancouver, and Fellows of New York. It is understood that this syndicate has already assumed the financial obligations of the Gordon Pulp & Paper Company of which T. A. G. Gordon was the head. The Ontario Government is said to be giving all the assistance in its power to bring the enterprise to a successful issue.

* * *

At the Central Canada Exhibition at Ottawa, last month, were several interesting and important exhibits in connection with the paper industry. In the Process department was shown paper manufactured from the block of spruce up to the finished paper. There were also some large rolls of paper made by J. R. Booth, one of which stood 12-feet high, said to be the largest ever made in Canada. The Beaver Board Company which will shortly build a factory in Ottawa showed the interior of a house decorated with its product in place of plaster or paper. The F. E. Eddy Company showed some bag making machines, made in its own shops, one capable of turning out 180 small grocers' bags per minute and another capable of making 35,000 large millinery bags per day. The E. B. Eddy Company also had some exhibits of sheathing

SHERBROOKE MACHINERY CO.

The Pulp & Paper Magazine has received from the above firm of pulp mill machinery manufacturers in Sherbrooke, Que., a small fragment cut from a cylinder mold covering which has been in practical, every day service for over one year on a Pneumatic Save-All installed in a pulp mill. It is an exceptionally fine piece of screen; finer than would ordinarily be used on any pulp machinery. Though it has had an extraordinary length of service, it is still in good condition. It has gradually become filled up around the points of contact with its backing. That is all. This sample is significant and indicates in the words of the manufacturers that:—

(1) Our Pneumatic Save-All works successfully over long periods, with a finer screen than you could otherwise use. With this screen (used in our Pneumatic machine) it is possible to catch and save practically all waste stock.

(2) Our Pneumatic Save-All, with such screens (rendered usable because there is nothing in this machine to wear them out) will actually continue in use for more than twelve months without a renewal of the screen. This bears out, in one detail, our claim that the costs of operating and maintaining this machine need not exceed twenty-five cents per ton of reclaimed stock, and often run far less. The evident absence of any wearing or friction strains upon the screen indicates that the Save-All is very easy to run, and this is an added proof of our claim.

(3) It would be impossible to use such a screen in an ordinary pulp thickener because it would not have enough capacity and would too quickly wear out. Yet in the Pneumatic Save-All, (whether used as such or as a pulp thickener) this screen gives a capacity of several hundred thousand gallons a day because there is a pneumatic suction constantly drawing the water through it. Hence it has enormous capacity.

NOVA SCOTIA PULP WOOD

In an article on the lumber industry in Nova Scotia, the Canada Lumberman makes the following remarks about the resources of that province in pulpwood:

As the cutting of the larger timber is being reduced, the attention of the public is being more and more drawn to Nova Scotia as a source for the supply of pulpwood, as the soil and the moist and equable climate are favorable to rapid growth of spruce. As an example of pulp wood capabilities, it has been stated on authority, after examination, that the section eight miles west and twenty miles back to the head-waters of Broad River will yield 225,000 cords. The second section, 11 miles along the shore and north by West Brook a distance of 20 miles, will cut 175,000 cords. The third section, west of Granite River stream into Sable River and including the Tom Tigney, a distance along the shore of six miles and 25 miles north to West River, will yield 500,000 cords. The fourth section, west to Jordan River nine miles, and 25 miles to head of that river, will yield 400,000 cords. The fifth district, west of the Jordan to the Shelburne 7 miles, to the head-waters 15 miles, will yield 250,000 cords. The sixth district, west of Shelburne River to the Clyde 15 miles, and north 25 miles to the head-waters, will yield 750,000 cords. Thus 1,200 square miles will cut 2,300,000 cords. It is usual to estimate an acre of fair land to produce 10 cords of wood. Estimating the burned-over portions of granted land as equal to the producing portions of ungranted lands, there are for 2,800,000 acres a present growth of 23,000,000 cords of pulp wood. As the growth of this wood from five inches to eight inches requires about 12 years, it is a reasonable calculation that Nova Scotia could supply 2,333,000 cords per annum. Against this the present annual local demands are:—Sissiboo Pulp Mills, 6,000 cords; N. S. Pulp Mill (Mill Village), 5,000 cords; Le Have Pulp Mills (New Germany), 5,000 cords; St. Croix Paper Mills,

1,000 cords; McLeod Pulp Mills (Mil-ton), 8,000 cords; total, 25,000. While the figures are only approximate, it must be evident that if the growth be conserved by protection from fires, by judicious cutting and by replanting, the annual wood crop of Nova Scotia will compete with its great mineral output for the foremost place as an employer of labor and a producer of wealth. While pulp wood is found in every county in the province, the localities in which it is chiefly cut are Queens, Digby, Shelburne, and Hants. Large quantities are also cut up in Cape Breton for export. The demand has doubled the price within the past fifteen years, and both the demand and price are likely to increase in the future.



CROOKES, ROBERTS & COMPANY

Attention is drawn to Crookes Roberts & Company's advertisement in this month's issue. This firm is one of the oldest and largest of Steel Converters and Refiners in Great Britain, and their reputation in Great Britain is most enviable. In addition to making every possible appliance for paper mills, which is a specialty of theirs, they also manufacture High Speed Steel, Special Crucible Cast Steel for turning tools, and a large variety of other specialties. There is nothing too good for them to make, nothing too big for them to undertake. One of their specialties is their Composition Metal Beater Bars, which have a life of upwards of 20 years. Their agents in Canada are the well-known firm of Arthur P. Tippet & Co., Montreal and Toronto.



—Terrible forest fires are raging in the Rainy River district, on both sides of the boundary. Several Minnesota towns have been wiped off the map, and at last reports others were in danger. Scores of settlers are said to have perished.

—Last month we received the following report from New Brunswick:—"On Sunday morning, 21st August, the gate of the intake pipe of the pulp mill at St. George, N.B., was carried away, and as the lower end of the pipe had been removed the day before for repairs, the main dam had to be broken down to relieve the situation. A serious accident was thus averted. Fortunately no one was working on the repairs at the time. The mill supplies power for the five stone cutting mills as well as the pulp mill, all of which will be shut down a part of this month. The damage is said to amount to over \$1,000." On enquiry, we are glad to learn that the damage was not so serious as stated. The St. George Pulp and Paper Company report:—"Our head gate broke and had to be replaced, but at a time when nobody was at work the water wheels, so that no personal injuries resulted. We had to shut the water out of the forebay to make the necessary repairs, and we seized the opportunity to construct two concrete-dams, each about 100 feet in length. This work is finished.



PROCESS IN SULPHITE MILLS.

(Continued from last issue.)

the manner described above, take a sample.

7. **Sampling.**—After 7 hours cooking in place of the stock from the digester by means of the test valve on the bottom of the digester. Wash this sample and examine it carefully. Shake up a small portion of it in a bottle with a large amount of water, and carefully observe that it is free from shives. If this examination after 7 hours cooking shows the cook to be still raw, continue cooking, repeating the test until an examination of the sample shows it to be just right. A digester should not be overcooked as it injures the strength of the fibre, and it also reduces the yield by dissolving away more of the wood than is necessary.

A similar test, almost as satisfactory

as the above, can be made by blowing some of the pulp and liquor out of the side testing valve instead of at the bottom, catching it in a glass and dipping an electric light bulb in it.

The color and smell of the liquor serve as a rough guide as to the progress of the cooking, but the final decision as to when a cook is just right to blow should be made only after an examination of some of the pulp itself.

A digester should not be undercooked, as it produces a raw, shivy pulp. By drawing the samples of pulp from the digester and examining them as above described, the correct time for blowing the digester can be told.

8. **Regularity**—The digesters should be steamed and blown at as regular intervals as possible, and two or more digesters should not be "put on" at the same time, as this causes a variation in the strength of the acid, due to irregular relieving.

9. **Separator***—The acid should be kept as strong as possible and no relieved liquor or gas be permitted to go to waste. The separator should only be used in case of emergency when the acid gets weak and has to be brought up to strength again. The liquor from the separator may then be permitted to go to waste, and only the gas reclaimed until the acid is up to strength again.

10. **Acid**—The lime in the acid should be kept at the minimum, consistent with the total strength of the acid. By a proper management of the relief good efficient coolers for gas and relieved liquor, and regularity in steaming the digesters, the acid can readily be kept at a strength of 4.50-5.00 total SO_2 , and with only 0.75 to 1.00 per cent. (or even less) combined SO_2 .

The stronger the acid and the smaller the amount of lime in it, the smaller the loss of sulphur, and the greater the amount of sulphur reclaimed during the cooking the shorter the time of cooking.

11. **Systematic Operation**—The various sections of the sulphite mill should be operated together as a whole. The wood room should prepare chips enough, the

chip bins should be kept as full as possible, the digesters steamed at regular intervals, and as little time as possible lost between blowing and filling. The blow-pits should be run regularly with the digesters, and the screens and presses kept supplied with stock.

It, for any reason, this regularity is disturbed, as in the case of a shut-down, or break-down, it should be readjusted with as little delay as possible, so that digesters will not be "waiting for chips," or screens or presses "waiting for stock."

12. **Shut-Downs**—Whenever a digester is to be shut down for any period, as for instance, over a Sunday, and is not to be inspected or repaired, it should be filled with chips and acid, steamed for an hour or more to warm up the contents, and then be allowed to stand until started up again. The digester room should be kept warm so that the digester shells may not get cold during the shut-down.

13. **Warming Up**—If the shell of a digester is cold, as, for example, after a long shut-down, it should be steamed slowly in order to warm it up gradually, and avoid cracking of the shell. The first cook after such a long shut-down should require 12-14 hours.

14. **Cooking Time**—Under favorable conditions of wood, acid, steam, etc., a good cook should require from 7 to 9 hours, depending on the size of the digester. Even in the very largest digesters excellent cooks have been made in 8 hours or less. Owing, however, to variable conditions, no definite cooking time can be specified.

*The separator consisted of a closed cylinder of sheet iron about 6 feet diameter, and 20 feet high, lined with acid-proof bricks. The blow-out pipe from the digester entered through the top and continued to about one foot from the bottom. At the top was also an outlet for non-condensed gases. The separator was usually kept about half full, and the hot gases bubbling through carried with them nearly every trace of SO_2 . The condensed liquor usually was let out into the river.

15. **Blowing**—When a cook is ready to blow, open valve one full turn, and then wait until the stock starts, which can readily be told by the sound. When sure that the stock has started freely, continue opening the valve slowly until it is wide open. The head-cook is responsible for the blowing of all digesters. He shall personally operate the blow-off valves. In large plants, when necessary, a helper may assist him with this work.

16. **Inspection**—After a digester is blown and the cover removed, steam is turned on for a few minutes, a light is introduced, and the digester inspected to see if it has blown clear before it is filled again. At the same time the valves, pipes and connections should be inspected and tested for soundness with a hammer.

17. **Washing**—Before blowing, about one foot of water should be introduced into the blow-pit by means of a pipe, entering underneath the perforated bottom, and it is best to let this water run continuously, while the cook is being blown. This prevents stock from going through the perforated bottom.

After blowing, shut off the water underneath, open drain valve, and allow stock to drain for 1½ to 2 hours, until it has settled down compactly and will not "rise up," when wash-water is introduced.

Next fill the blow-pit nearly full with wash-water, shut off water, and allow to drain until the thick stock appears, and no more water is seen above it. If there is time, fill pit with wash-water again and allow to drain as before.

18. **Sluicing and Inspecting**—Sluice out the stock from the blow-pit with a fire-hose nozzle until the stock is completely run out, and the perforated bottom exposed. The water underneath should be kept turned on during this "sluicing out" so as to prevent any stock from washing through the perforated bottom.

After all the stock has been run out, turn off the water underneath, introduce a light and inspect the condition of the pit before another cook is blown into it. A man must not enter into a blow-pit to sluice it out or repair it, while the digester connected with it is being steamed,

as this practice is dangerous. A blow-pit must be entered only when the digester is idle or is being filled.

19. **Coolers**—The reason why the acid is stronger and the consumption of sulphur and lime is lower in cold weather than in warm weather is because water absorbs more SO_2 gas at low temperatures. It is therefore necessary for coolers to be efficient, especially in warm weather. The gas from the sulphur burners, the relieved gas, and the relieved liquor from the digesters should be cooled as low as possible. As lime generates heat when slaked, the lime-water should be allowed to cool off as much as possible before going to the systems. As heat is generated by the chemical action of the SO_2 gas on the lime, it is of advantage to cool the acid-pipes from the system to the storage tanks.

20. **Sulphur burning**—The stronger the gas from the sulphur burners, the stronger the acid will be and the less will be the amount of lime necessary to get a strong acid. The sulphur burners should therefore be adjusted so as to give the strongest possible gas without subliming or "pulling sulphur."

21. **Cleaning up**—All tanks, riffles, flow-boxes, screens, etc., in fact all places where slime can accumulate, should be carefully watched, and kept free from slime and dirt, as much of the dirt observed in sulphite gets into it by lack of attention to the matter of "cleaning-up."

22. **General principles**—In explanation of the above instructions and in addition thereto, the following general principles should be well understood.

A—Saving of all the relieved gas and liquor throughout the entire cook, and using the separator only in case of emergency when the acid is weak, thus preventing as much as possible the loss of sulphur and lime.

B—Cooking at rather low temperatures and pressures, so that the fibre is not weakened any more than necessary, thus producing the strongest fibres.

C—Carefully regulating the steaming and renewing so as to keep the acid liquor in the digester as strong as possible until the cook is ready, thus using

the minimum quantity of the acid constituents to accomplish the result. This also produces a pulp of the whitest color.

D—Judging the time for blowing by examination of samples of pulp drawn from the digester rather than from the smell, color or iodine test of the liquor. This prevents blowing a cook too raw or carrying the cooking too far, thus preventing the pulp from being varying in quality and permitting of the production of a pulp of uniform character at all times.

E—Relieving from the side of the digester where there is liquor only instead of from the top, where there is gas, during that period of time when the cooking is progressing at its maximum rate. The temperature and pressure being then rather high, it is necessary to prevent gas from escaping in order to keep up the strength of the liquor as much as possible during this period.

F—Keeping the relieved liquor separated from the fresh acid, and relieving gas only into the reclaimer tank, and by

filling a digester with a certain quantity of strong acid from the reclaimer of this relieved liquor and a certain quantity in proportions, depending upon the strength of each. The composition of the resulting mixture in the digester is always the same. This produces a uniform result at all times, which cannot be obtained if the liquor and gas are both relieved into one reclaimer tank, as the resulting acid will sometimes be stronger and sometimes weaker.

G—Relieving to the reclaimer tank all the gas possible for about 30 to 40 minutes before the cook is ready to blow, thus saving it instead of permitting it to remain in the digester until it is ready to blow, and then blowing it into the blow-pits, where it is lost. This reduces the consumption of sulphur.

H—Cooking with an acid low in lime and high in free SO_2 , which causes less loss of sulphur in combination with lime in the liquor from the blow-pits. Lime holds sulphur in chemical combination with it as "combined SO_2 ," and this can-

Have you got your Copy
OF THE
Pulp and Paper
Handbook of Canada?

Only \$2

BIGGAR-WILSON, LTD. - Toronto

not be recovered by reclaiming as in the case of "free SO_2 ." For this reason the relieving must be done more carefully to hold the strength of the acid in the digester as long as possible. The side relief is of considerable aid in accomplishing this result.

I—"Blowing light" gives the largest yield and the best fibre, both as regards color and strength, but it is more difficult to screen. The quality and yield should, however, not be sacrificed by overcooking simply because it is easier to screen.



SCANDINAVIAN PULP AND PAPER MARKETS

Norwegian paper makers are very busy and cannot take new orders except with long time of delivery. They have, however, been disappointed with regard to prices, having obtained an advance, but not at all so great as they had hoped and expected.

The pulp market remains unsatisfactory in both sections. As regards mechanical pulp, it is to be feared that we are only at the commencement of one of the usual periods of prolonged depression, which follow a too rapid increase of the number of new mills, together with a material addition to the producing capacity of existing mills, and over the whole of southern Norway water conditions have this summer favored a maximum output. In the Trondhjem district, on the other hand, there has been a prolonged severe drought, so much so, that the water supply in Trondhjem city has been giving out.

We understand that the statistics compiled by the Swedish and Norwegian Cellulose Associations have for some months indicated a very slight, but sustained improvement in the cellulose market. We cannot but repeat our regret that both the Cellulose and the Mechanical Pulp Associations keep their statistics private and available for their members only.

If these statistics were regularly published, they would, we feel convinced,

tend to keep the trade more steady; on the one side actual knowledge of the market would have a tendency to prevent overproduction, and when the figures indicated an improvement, however slight, it would help the market to recover from such conditions of utter prostration as the present.

The cellulose mills had sold the bulk of their output for years forward at high prices, when the current depression set in. In quite a number of cases we understand that these contracts have not availed them very much as buyers have found one pretext or another to escape from their speculative purchases.

At the present low and, to the makers, ruinous prices, consumers are eager to cover their requirements for two, three or more years forward. Makers both of cellulose and of mechanical would do well to refuse to entertain long contracts at any price, and we certainly fail to see why they should be in a hurry to sell just now. After bad times and low prices there will, sooner or later, come good times and better pulp prices. But the most serious aspect of the present situation for Norwegian pulp makers is that log prices in our country do not at all respond to the serious fall which has occurred in pulp prices.—"Farmand."



It having been stated by a speaker before the Trade and Labor Association meeting in Fort William that some of the Hull paper mills were in the habit of operating on Sunday, Mr. Millen, joint manager of the E. B. Eddy Company, issues the following statement:—"The only mill in operation at all on Sunday is the sulphite mill, which could not possibly be closed down, as the furnaces have to be kept going. The only other time that the mills are working is when a breakdown occurs or the ponds need cleaning. If this were not necessary we would not do it, but it is necessary because if we did not do such odd jobs on Sundays all the men would be out of work on Mondays."

The Pulp ^{AND} Paper Magazine of Canada

Vol. 8.—No. 11.

TORONTO, NOV., 1910

{ Canada \$1 a Year
{ Single Copy 10c.

Pulp and Paper Magazine

A monthly magazine devoted to the interests of Canadian pulp and paper manufacturers and the paper trade.

Subscriptions: Canada and British Empire, \$1.00 per year. United States and Foreign, on account of postage \$1.50 per year.

The Pulp and Paper Magazine is published on the second Tuesday of each month. Changes of advertisements should be in the publishers' hands not later than the 1st of the month, and, where proofs are required four days earlier. Cuts should be sent by mail, not by express.

BIGGAR-WILSON, Ltd.

PUBLISHERS.

**Offices, Confederation Life Building,
Toronto, Canada.**

SOME "RECIPROCITY" QUESTIONS.

A recent dispatch from Washington stated that "experts who have been working out the pulpwood and paper schedules, in which the Canadian arrangements also would be concerned, are making progress beyond the expectations of the Tariff Board. Several of the largest paper companies have volunteered to furnish important information, which at one time it was doubtful if the board could obtain." In view of the multiplicity of the wires which, it is safe to aver, are now being pulled in the United States, having reciprocity with Canada as their mainspring, it would be of pe-

culiar interest to know the exact meaning of the last sentence in this dispatch. Possibly—we express no opinion, however—it means that the interests of the United States pulp manufacturers are to be sacrificed in a measure to those of the paper manufacturers, whose capital invested is larger.

The newspaper publishers in the United States are understood to be working for the absolutely free entry of Canadian pulp and paper, provided provincial restrictions on the export of pulpwood be also removed. Now, Canada, naturally, can have no objection to the shipping of its paper into the United States free of duty, provided that the concessions asked in return be reasonable. In fact it is deemed so necessary for the American people themselves, that the barriers against Canadian paper should be removed, that to ask for concessions in return for a gift bestowed for their own advantage, has a savor of the days of wooden nutmegs. It would mean the speedy establishment of many more paper mills on this side of the boundary; probably, in time, the development of Canada into the greatest paper manufacturing country in the world.

But, should such a concession carry with it the removal of the bars against the entry of American paper into Canada, conditions would be brought about which

should be very carefully considered beforehand. At the present time, at any rate, the only branch of paper making which is of any great interest to Canadian exporters to the United States is news print, of which the shipments, particularly in recent months, have shown large increases. Now, in the event of the Dominion Government granting free entry to United States manufacturers of news print—we do not say such a concession is at all probable, but are merely making out a suppositious case—the Canadian market would lose a large proportion of its present comparative stability. The United States market is more easily affected by speculation and by adventitious circumstances than is our own, and the result of the opening of it to United States manufacturers would likely be an almost immediate tendency to erratic fluctuations, which would be in the interest neither of the domestic manufacturer nor of the consumer. As to the pulpwood question, we believe public opinion in Canada would not stand for the removal of the present restrictions of export. With free news paper in the United States, however, this is a problem which would speedily right itself, because, with the transfer of paper mills to this country, there would be a constantly diminishing call for wood export.

In the case of other lines of paper making—should the Dominion Government be ill-advised enough to take down the barriers—the result on home industries would be still more injurious. The American mills have many advantages compared with those in this country. Catering to a larger population they can specialize, and thereby make considerable economies in the processes of manufacture; they pay less for their machinery and have a better, or at least, a larger

selection of labor; in many cases also, they can obtain cheaper raw materials.

From whatsoever point the threatened reciprocity negotiations are viewed, one can see danger ahead for Canadian industries, and while there is no desire to meet our neighbor's advances with an absolute rebuff, yet of a certainty it behoves us to keep a most vigilant eye on our own side of the case.



A NATION'S RIGHTS NOT FOR PRIVATE SALE.

Reports from Ottawa and Washington tell us that an informal conference on the subject of reciprocity between Canada and the United States began on the 5th November, the anniversary of a plot famous in British history. Is this a preliminary to taking counsel with the people of both countries, or is it a secret conclave of gentlemen who, under the delusion that they are contributing a new chapter to the story of international good-will, may be unconsciously performing the part of a Guy Fawkes in bartering away the economic independence of Canada?

There is no question that a reciprocity treaty, if carried through on the lines so shrewdly prepared by the United States negotiators, will have the effect of compromising the relations of Canada to the Mother Country and the British colonies, as well as to foreign countries, with which our prospects of trade are now bright. Will the voices that are now being raised by the cooler heads within the party in power be heard in time, or will the country be committed to an act which will ultimately mean the extinction of Canada's fiscal independence?

What is the hallucination which has come over some of our leaders that they must do by treaty that which can be better done by independent legislation and without entanglement? It is all very well to plead that a provision would be inserted in the treaty giving either party the right to terminate it. Make a treaty and see vested interests to the amount of hundreds of millions of dollars created under the special sanction of that treaty, and then let the weaker party attempt to throw down the Colossus of its own creation:—a boy of seven tied to the leg of a giant.

The last reciprocity treaty was denounced by the United States, the stronger party, and the plea of Canada for its continuance availed nothing. Since then this country has spent many hundreds of millions of dollars in building railways, canals, harbors and other public works to unite its scattered Provinces and develop trade with other countries, notably with Great Britain. Under a moderate tariff with these countries it has created a comparatively large overseas trade, and from the present outlook it is plain that the future of Canada's most profitable trade is with countries across the seas rather than with this continent only. The United States is now realizing that it must look in the same direction for the future. In fact, its foreign exports of manufactured goods have this year for the first time exceeded its total exports of natural products and semi-crude materials. Now, in order to maintain its development in this direction, it must have more cheaply many of the raw materials which can be had to best advantage from Canada only.

One of these materials is timber, of which pulp-wood and its products of

pulp form an important branch. But the paper industry and subsidiary manufactures employ more capital and skilled labor than the pulp and timber trades. The United States has a large trade with Canada and the rest of the world in the higher grades of paper and paper products, but it is approaching the end of its own supplies of wood, and if it can save itself from the consequences of its own reckless destruction of forests by using up Canada's, and maintain its own export trade in paper manufacture, it will do a clever thing. Hence the anxiety of the United States Government to secure this situation under the guarantee of a treaty. The same problem applies to the United States flour milling and other industries, referred to elsewhere.

Unfortunately a forest cannot be re-created in a year, like a crop of grain, and a treaty which submits Canada to the same destructive agencies that have devastated the forests of the United States is a snare of the gravest peril, seeing the vital relation of the forests to our priceless water-powers. The United States is the fox at the bottom of the well in the fable, and if Canada is a goat simple enough to jump down and let the fox jump out over his head, the world will applaud the fox. The United States is also in the position of the five foolish virgins whose oil is going out. Will the five Canadian virgins have the wisdom to keep their own oil, seeing there is not enough to go round, or will they give it away?

If the reader will study the unconscious revelation of purpose disclosed in the speeches of reciprocity advocates quoted elsewhere, he will admire the diplomacy of the United States negotiators in introducing questions of rail-

way regulation, etc., in order to give scope and breadth to the negotiations and furnish reasons why the object should be achieved by treaty and not by independent tariff changes.

There is a wide difference between the cancellation of one of the present treaties Canada has with foreign countries and one which she might make with the United States. In the first class of cases oceans separate us from the other parties, and no important industries will be established in Canada under the control of the foreign interests concerned in the treaty. In the case of the relations between Canada and the United States, one of the first results will be to create and consolidate huge financial and industrial concerns, who will own in Canada the feeder industries tied to their more important manufactures in the United States. These corporations are proverbially influential in shaping the legislation in the United States. When they are given rights of pre-emption under the specific authority of a treaty, and when they acquire vast areas of land in Canada, the possession of which becomes an essential condition of maintaining their business on the other side, they would be more than human if they did not appeal to their Government if this pipe-line was to be severed by an abrogation of the treaty. We know how ready the United States Government has been to pounce upon the central and south American States, where comparatively insignificant vested rights of its citizens have been interfered with. If the Canadian Government wants to reduce the tariff to United States manufactures, or even give free trade, let it do so as an act of free will by a free power. Why deliberately run the country's neck into

this lasso and reduce it to a state of vassalage?



LOOKING FOR TROUBLE.

Why Canada should be dissatisfied in the midst of her years of plenty and go out to sow the seeds of trouble for her future administrators in a needless reciprocity treaty passes comprehension. After going through the stress of nation-building, and spending millions to build up foreign trade connections, and then to sign away her own fiscal independence, is like the causeless ruin described in Lalla Rhook:—

“Like ships that have gone down at sea
When heaven was all tranquility.”

Sir Geo. W. Ross, in his speech a few days ago before the Toronto Board of Trade, expressed the philosophy of the situation thus:—

“Reciprocity would not help our national autonomy. A treaty means an obligation, and an obligation is subject to interpretation. For my part, I do not want to see any act of the Canadian people subject to interpretation at Washington. Only once in 100 years did we get full justice in the interpretation of treaties affecting Canada, and that was before The Hague Tribunal a month ago. Let us remember the epitaph of the man who, having lived to a good old age, thought medicine might be of some use, and so consulted a physician. He wrote his epitaph for the benefit of his fellow-men: ‘I was well, I wanted to be better, and here I lie.’ An adjustment of the trade relations between the two countries by the independent legislation of both rather than by treaty is the only safe course, as it affords publicity in the first instance and admits of perfect freedom of action thereafter.”

THE FOREST FIRE MENACE.

While the people of Canada, at forestry conventions and elsewhere, have been talking of putting a padlock on the stable door, the steed has gone and—we are still talking of the needed lock. We know, or ought to know, and ought to have known for a long time past, that to preserve the forest resources of the country against the ravages of fire is one of the first and most important duties which this generation owes to the next; we also know that in order to thus preserve them, some much more efficient means of protection must be provided than that at present in use. Yet, in spite of all this warning and fore-knowledge, look at the devastation which has been wrought in one summer's drought! Think of the scores of lives snuffed out in the fires in the Rainy River and adjacent districts, the homes and villages destroyed, the millions of feet of precious timber burned or spoiled! And that is only one instance where the product of hundreds of years has been destroyed, with the growing hope of future generations also completely wiped out. Manitoba and British Columbia have likewise suffered. In parts of Northern Ontario, where the basic rock is only thinly covered with vegetable matter, this has been burned absolutely through, and nothing is left but a rocky unfertile waste, to depress our descendants.

The most bitter thought is that this terrible waste of life and timber and soil was foreseen, and yet not prevented. Legislation can do much; has already accomplished something. It punishes the tourist or camper who carelessly leaves an unquenched fire in the woods. That is to say, there is power to punish on the statutes, but, with the said camper only partially impressed with the serious-

ness of the offence, such legislation, which is insufficiently provided with machinery for being carried out, is not very effective in preventing the fires which, from a foot or two in diameter, may, with the right atmospheric conditions easily reach colossal proportions. There is now also legislation which places the onus for damage from fires caused by locomotive sparks upon the railway companies themselves, unless they can prove there was nothing lacking, either in their employees or in equipment, for the reasonable avoidance of the danger. Such laws are in the right direction, but a good deal else remains to be done, in the way of proper and efficient protection.

Take the case of the Rainy River district. As we understand the matter from the remarks of Mr. Bury, one of the fire rangers there, there are only eighteen men to cover a territory possessing an area of 700 square miles. Moreover, these men are only supposed to patrol the woods during the months of June, July, August and September, whereas on the Minnesota side of the boundary the service is continued throughout the year. Even if a continual service be not absolutely essential, there is no doubt that its prolongation by another month at each end of the season would be very helpful. Besides this, Mr. Bury points out, much fish and game are taken out of the country in fall and winter and with continued patrolling by the fire rangers, who are practically the same as the game wardens, this could be largely saved.

Eighteen men to look after the great resources of an area as large as that referred to cannot possibly do the work as efficiently as it has to be done if forest fires are to be kept down to a minimum. If they represent average conditions, it is plain that these conditions must be improved without delay.

—A preliminary comparative report just issued by W. M. Stewart, Chief Statistician to the United States Government, shows that the consumption of pulp-wood in the United States during the year 1909 was 4,002,000 cords compared against 3,347,000 cords in 1908 and 3,963,000 in 1907. The increase of last year over the previous one was thus about 19 per cent. The cost of these quantities for the three years, 1909, 1908 and 1907, was \$34,478,000, \$28,047,000 and \$32,360,000, respectively. The returns show there has been a marked increase in the cost per cord of the spruce used; they also show a tendency to make use of woods relatively less valuable than spruce. In 1909, the percentage of spruce used in the pulp mills of the United States was 60½ per cent.; in 1908 it was 64½ per cent., and in 1907 it was 68 per cent. Balsam, white fir, birch and basswood are the main contributors to the non-spruce supply. Of balsam, for instance, the quantity used last year was 95,000 cords, costing \$790,000, as against 1908, when the quantity was 45,000 cords, valued at \$328,000. The year 1909 is the first in which white fir is itemized separately. There is a growing tendency to make use of slabs and mill waste. Total production of pulp (air-dry) last year in the United States is given at 2,491,406 tons, as compared with 2,118,940 tons in 1908 and 2,547,870 tons in 1907.



There is believed to be a likelihood of British capital being invested in pulp-wood timber areas in the Province of Quebec to the extent of millions of dollars within the next two or three years. Montreal brokers are said to have received already a very large number of enquiries.

PYRITES IN SULPHITE MILL.

Editor Pulp and Paper Magazine:

Sir,—Referring to Dr. Wilson's article in the October issue of your journal regarding the substitution of copper pyrites for brimstone in a sulphite pulp mill, it is well to note that with the proper mechanical furnace a sufficiently strong SO₂ gas may be obtained, and at the same time practically no SO₃ or oxygen.

I have calculated that with pyrites costing 10½ cents per unit and brimstone \$23 per ton, the saving by the use of pyrites will be \$10 for every ton of sulphur burned.

In case any SO₃ gas is formed, it may be recovered as sulphuric acid before it is sent to the absorbers.

Yours very truly,

Herbert S. Kimball,
Chemical Engineer and Mill
Architect.

Boston, Mass.



THE PNEUMATIC SAVE-ALL.

The Anglo-Newfoundland Development Co., Limited, Grand Falls, Nfld., has written to the Sherbrooke Machinery Co., Sherbrooke, as follows:—

Dear Sirs,—We have your pneumatic save-alls running in our plant here, as well as the pneumatic thickeners and your ground wood deckers. We are very satisfied with the working of them all, and we feel very justified in giving you the highest testimonials as to their working, and we consider them the most economical process we have seen, and we should have great pleasure in recommending them to any of our friends in the trade.

Yours truly,

Anglo-Newfoundland Development Co.,
Limited.

Vincent S. Jones,

Superintendent.

E. B. Berwick,

Superintendent Sulphite Mill.

CANADA'S TRADE IN PULP, PAPER AND PRINTED MATTER

In 1868, the first full year of the Canadian Confederation, the four provinces then forming the union imported from Great Britain, paper and manufactures of paper amounting to \$897,279 against a total of \$385,382 imported from the

United States. The figures which follow will show how completely these two countries have changed places in their trade with Canada.

By 1886 the trade had reached the following dimensions:

Canadian Imports, 1886.

	From Gt. Britain.	From U.S.	Total from all countries.
Books, periodicals, and pamphlets.....	\$188,991	\$ 373,740	\$595,016
British copyright books, reprints.....	.....	7,669	7,669
Bibles, prayer books and hymn books..	70,269	51,629	141,971
Blank books and copy books	31,147	33,100	65,690
Bill heads, forms, etc.....	12,709	82,735	99,105
Posters, advertising bills and folders...	4,343	36,831	41,322
Advertising pamphlets	378	7,588	8,038
Labels for tins, etc. ..	700	27,915	28,834
Maps and charts	10,880	8,902	19,884
Advertising pictures, show cards, etc...	7,115	17,223	24,460
Music, bound or in sheets	9,646	61,020	71,019
Valentines, Christmas cards, etc.....	20,362	23,737	56,487
Paper bags	34	4,880	4,923
Cards for playing	4,060	9,276	13,958
Calendered paper, including writing....	184,265	88,664	276,161
Card board, bristol board, paste board..	11,212	35,215	48,832
Felt roofing paper .....	.....	192	192
Wall papers	220	1,345	1,574
Wall papers, embossed or plated.....	68,806	198,345	274,170
Leather board .....	.....	2,505	2,505
Boot and shoe counters of leather board	.....	3,420	3,420
Mill board	2,045	6,124	8,361
Collar cloth paper .....	.....	22,428	22,428
Envelopes, papier-mâché, etc.	58,190	150,674	235,307
Printing paper	11,704	13,667	25,387
Ruled paper	9,660	28,760	38,752
Straw board in sheets or rolls	1,460	4,628	6,258
Wrapping papers	2,412	8,800	11,323
All other papers, n.e.s.	33,344	61,166	99,722
Total dutiable goods	\$752,070	\$1,372,220	\$2,233,858
Free Goods.			
Books, second hand	\$18,451	\$11,073	\$40,634
Books, scientific, for societies	383	542	1,114
Books for deaf, dumb and blind.....	.....	462	462
Newspapers and magazines, unbound...	35,840	54,226	90,416
Total free goods	\$54,674	\$66,303	\$132,626

Canadian Exports, 1886.

	To Gt. Britain.	To U.S.	Total to all countries.
Books, pamphlets, etc.	\$24,243	\$16,001	\$86,677

Canadian Imports, 1900.

	From Gt. Britain.	From U.S.	Total from all countries.
Books, periodicals and pamphlets....	\$151,073	\$464,343	\$654,621
" unbound	13,904	70,609	86,575
Printed forms	6,465	31,840	38,762
Posters, advertising bills, etc....	1,583	16,079	17,702
Labels for tins, etc., and packages....	11,825	48,538	78,202
Maps, charts, etc.	6,124	14,035	20,407
Newspaper supplements .....	.....	437	437
Advertising pamphlets, etc.	7,254	57,027	66,712
Chromos, lithos, etc., for advertising	5	2,648	4,056
Music	7,263	26,619	34,818
Pictures, engravings, n.e.s.	41,256	340,859	402,556
Photographic papers	3,648	104,435	109,067
Paper bags	25	12,628	12,979
Cards for playing	2,991	26,639	29,637
Calendered, including writing and note.	4,244	5,750	11,477
Card board, paste board, in sheets or cut	1,700	26,758	37,339
Envelopes	7,669	20,860	28,623
Felt paper, tarred	72	14,737	14,809
Felt paper, not tarred .....	.....	2,630	2,630
Wall paper	8,655	79,021	91,272
Wall borderings	56	2,642	2,698
Leather board	51	6,272	6,323
Mill board.....	653	17,218	17,871
Collar cloth paper, not glossed .....	.....	2,889	2,889
" " " glossed .....	.....	1,472	1,472
Papeteries, pads, etc.	76,027	297,065	428,758
Printing papers	57,326	134,130	192,781
Ruled, bordered and boxed papers.....	2,992	5,198	9,546
Straw board, in sheets or rolls	175	16,546	16,721
Window blinds of paper	54	360	414
Wrapping paper	2,385	13,225	19,795
All kinds, n.e.s.	105,215	252,188	388,496
Sand paper and emery paper	1,586	47,724	49,605
Wood pulp	73	23,196	23,269
Total dutiable goods	\$522,350	\$2,186,608	\$2,902,013

Free Goods.

Bibles, prayer books, and hymn books..	\$52,901	\$53,726	\$143,786
Scientific books for societies	1,316	4,546	6,714
Books for the blind, deaf and dumb....	238	72	310
Text books	43,090	153,476	212,542
Books, second hand	3,450	5,662	14,962
Books, technical	3,961	36,629	46,010
Fashion plates .....	.....	4,256	4,256

Newspapers, unbound	27,500	107,340	135,801
Total free goods	\$132,545	\$365,707	\$564,441

Canadian Exports, 1900.

	To Britain.	To U.S.	Total to all countries.
Pulpwood	\$38,370	\$864,077	\$902,772
Books, pamphlets, maps, etc.....	37,118	50,149	138,110
Wall paper	1,359	23,561	29,741
Wood pulp	562,178	1,193,753	1,816,016
Paper and manufactures of	1,359	25,091	31,271
Total exports	\$640,394	\$2,156,631	\$2,917,910

Canadian Imports, 1910.

Books and pamphlets	\$348,591	\$897,023	\$1,325,707
Books, unbound	31,407	63,726	100,905
Freight rates (forms)	504	16,161	16,690
Blank forms	22,788	149,576	175,210
Posters, advertising bills and folders...	1,316	29,234	30,588
Labels for tins, etc.	15,790	136,070	178,204
Maps and charts	8,350	12,143	20,746
Newspaper supplements .....	.....	12	12
Advertising pamphlets, show cards, etc.	36,186	277,780	321,291
Advertising pictures and engravings ..	1,198	3,144	4,355
Music	21,704	141,563	167,108
Photos, drawings, and art pictures.....	213,449	466,959	826,042
Photographers' papers	58,068	76,059	134,707
Bags	2,604	23,170	28,488
Cards for playing	45,933	30,341	76,358
Card board	3,792	22,866	26,877
Envelopes	16,717	61,715	79,280
Felt board .....	.....	8,907	8,907
Wall paper	48,247	206,662	274,244
Leather board	1,036	31,741	32,777
Mill board	3,294	44,107	49,240
Paper collar cloth	814	1,718	2,532
Pads, not printed	1,604	4,462	6,408
Manufactures of paper, n.e.s.	226,676	979,641	1,336,708
Paper boot and shoe patterns.....	.....	2,599	2,599
News print at 2¼ cts. per lb. or less...	.....	41	41
Printing paper, n.e.s.	222,991	234,739	463,142
Ruled, bordered and boxed papers.....	40,093	99,343	168,514
Straw board, not coated	122	25,779	28,744
Tarred building paper	1,836	345,213	347,745
Paper window blinds	115	.....	115
Wrapping paper	5,833	58,102	90,530
Paper, all kinds, n.e.s.	348,266	927,190	1,435,008
Wood pulp	1,112	32,456	35,191
Total dutiable goods	\$1,720,526	\$5,490,202	\$17,354,191

Free Goods.

Bibles, prayer books and hymn books..	\$208,445	\$88,958	\$356,839
Scientific books for societies	1,555	2,321	4,436

Books for the blind, deaf and dumb..	213	358	571
Text books	150,138	241,879	422,866
Second hand books	9,407	4,487	19,357
Books in foreign languages	10,968	124,113	155,586
Fashion plates	48	7,848	8,528
Photographic papers	3,120	22,459	46,968
Total free goods	\$179,894	\$482,414	\$1,005,151

Canadian Exports, 1910.

Books, pamphlets, etc.	\$82,137	\$152,672	\$247,183
Wall paper	50	1,644	28,384
Felt paper	165	5,269	23,539
Wrapping paper			9,098

Exports of Stationery.**Printing paper.**

Great Britain	\$ 527,851
Australia	445,549
Br. Africa	124,096
Br. W. Indies	1,164
Newfoundland	10,007
New Zealand	179,208
Argentina	27,511
Belgium	1,880
Brazil	7,501
Cent. Am. States	4,160
China	1,977
Cuba	23,010
Hayti	205
Mexico	3,479
Panama	1,528
Philippines	2,351
San Domingo	158
U.S. of Columbia	666
United States	1,246,795
Venezuela	2,654
Other countries	493

Total \$2,612,243

Other papers, the produce of Canada.

Great Britain	\$384,458
Australia	7,440
Bermuda	1,306
Br. Africa	15,228
Br. Guiana	993
Br. W. Indies	4,488
Newfoundland	10,624
New Zealand	1,044
Austria-Hungary	1,094
Belgium	186

Stationery	23,380
Cuba	1,420
France	81
Germany	1,056
Holland	500
Italy	65
Japan	1,337
Mexico	2,372
Switzerland	364
United States	39,727
Other countries	49
Total	\$482,832

Wood Pulp, Chemical.

Great Britain	\$ 42,252
Australia	814
Belgium	14,520
Cuba	921
Japan	914
Mexico	2,106
United States	1,597,319

Cwt. 864,606 \$1,658,846

Wood Pulp, Mechanical.

Great Britain	\$ 888,898
Belgium	14,371
France	62,316
Mexico	2,176
United States	2,577,990

Cwt. 5,038,850 \$3,545,751

Total exports to G.B. in 1910.	1,025,811
“ to U.S. “	5,621,416
“ to all countries.	8,631,256

Wood for pulp was also exported to the amount of 965,271 cords, valued at \$6,076,628, all going to the United States.

STORAGE AND HANDLING OF PULPWOOD

The accompanying photographic reproductions show the storage yards of the E. B. Eddy Co., Hull, Canada.

The picture was taken early in the season, when the storage was low, but at the present time this company has stored a winter supply, covering an area of 75,000 sq. ft., and amounting to nearly 9,000 cords of spruce pulpwood, of sticks ranging in sizes from 6 to 24 inches in diameter and 2 ft. in length.

This company operates this conveyer line four to five months each year. Beginning in the spring, the wood is

in the photograph. This cable conveyer carries the wood at the rate of 150 ft. per minute, and has a total length of 500 ft. and a maximum height of 65 ft. above the wood storage yard. The wood is piled along the entire length of the conveyer, extending 350 ft. wide at highest point. Arranged in the horizontal portion of the conveyer, there are 14 drop valves, which are operated from a walk way (see photograph). These valves can be opened or closed by a toggle-joint operated valve in order to distribute the pulpwood uniformly over the yard and to obtain the maximum storage



New View of the Pulpwood Conveyer, E. B. Eddy Plant.

floated down the Ottawa River in 12 to 16 ft. lengths, butted automatically and dumped into a haul-up conveyer.

The logs are hauled out of the water by means of a chain conveyer system, having barrel arm attachments, spaced at 8 feet intervals, delivering the logs to the saw table. The saw table has five circular saws, arranged in echelon. After the logs pass over the saw table, they are dropped into a transverse conveyer, which in turn delivers them to the elevated wire cable system, as shown

capacity for this conveyer line.

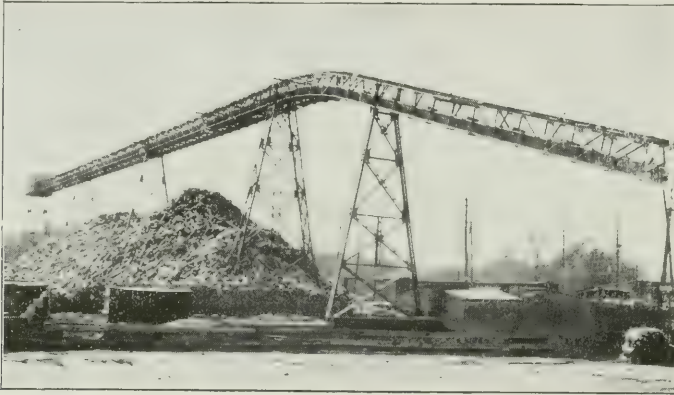
The construction and details of the conveyer system may be noted in the drawings. The supports are built entirely of structural steel, involving about 60 tons in its construction. The wire cable, operated on two Jeffrey flexible tooth sheaves, with return strand carried directly under the trough, has the take-up of the rope placed at the receiving end and with an automatic tension maintained by means of a counter weight.

The capacity of this conveying system is over 500 cords per day, but as explained before, the wood is only handled in the spring and summer months. As the wood passes along, it is automatically counted.

The cable conveyer is operated from the head end by a three-phase, 25 h.p. motor, which is placed in the small house shown at the end of the conveyer

the expense necessary to replace the entire sheave. This sheave has rendered it possible to make a successful cable conveyer of the scraper type.

In recent advices from G. H. Millen, joint manager of the above company, we are advised that the cost of operating this conveyer outside of the power, is only about \$3.00 per day. The amount of saving effected over previous methods



Cable Conveyer System Handling Pulpwood at E. B. Eddy Plant.

line. The entire conveyer system has been thoroughly tested out and it was proved by actual demonstration that less than 20 h.p. was required to operate it at full load.

The sectional drawings in Figure 4, show the driving end plan view, driving end sectional view, conveyer trough sectional view, details of discharge gates.

The special features noted in the construction of these details, consist of a Jeffrey flexible tooth expansion rim cable sheave, which has several features to recommend it: the first consists of a flexible tooth, which backs up the cable and prevents the same from snapping off the sheave as the cable and flights are delivered from the sheave. The expansible rim feature allows an adjustment in the pitch to compensate for the wear of sheave and flights, and, furthermore, for replacements, or sheave renewals, it is possible to replace portions of the expansible rim without going to

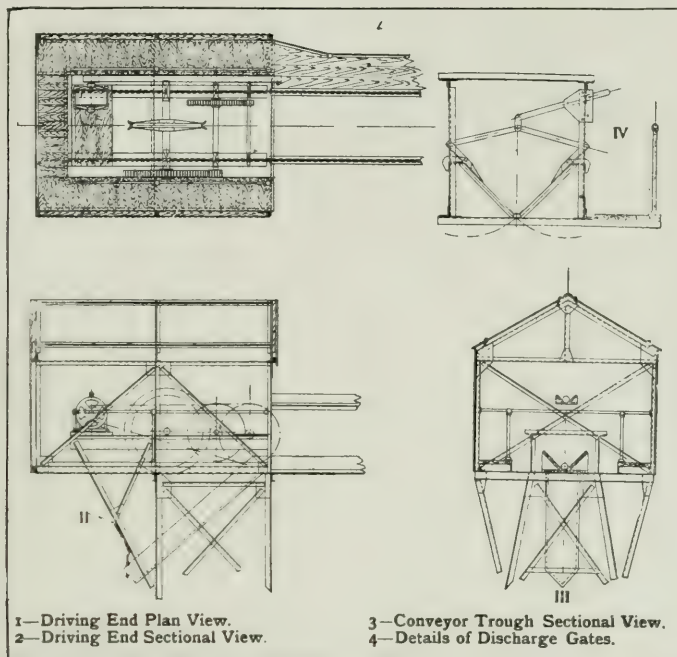
is fully seventy-five per cent. Formerly the wood was drawn from the saw mill to the piling yard by teams and placed in heaps, by hand. The new mechanical handling system obviates all the handling, hauling, and piling, doing away with the work of four teams and sixteen men. In other words, a saving of from \$20.00 to \$30.00 per day is effected while handling this pulpwood mechanically.

The entire conveying system was designed and built by the Jeffrey Manufacturing Company, works in Montreal, and a branch of parent company in Columbus, Ohio.

Mr. Millen further states that besides saving thousands of dollars expense compared with the old method, the disagreeable task of loading wet spruce pulpwood on wagons and rehandling same, is entirely obviated. The pulpwood is hauled by electric trucks from the storage yards to the grinders.

The E. B. Eddy Company operate 16 pulp grinders in their paper mill, besides having an output of 120 tons per

day sold entirely in Canada. Other machines are used for turning out over one million "Eddy" bags per day. This



Showing Details of Jeffrey Conveyor System at E. B. Eddy Plant.

day. They also manufacture indurated fibre ware, and are the largest manufacturers of matches in Canada. Two paper machines are used for making nothing but news prints, all of which is

company also maintains a printing shop in the big factory where it does all its own printing, as well as for their customers.



PAPER MILL AT THE SOO?

Rumors have been going the rounds to the effect that a United States syndicate—some said headed by the Hearst interests—had the idea of buying out the pulp mill of the Lake Superior Corporation at Sault Ste Marie and building a large paper mill at an estimated cost of anywhere from \$1,000,000 to \$10,000,000. This is denied by W. C. Franz, general manager of the Corporation, but the rumors of something impending persist. It is by no means likely that the strong English interests at the back of the Corporation would allow such a potentially valuable asset as the pulp

and paper industry to pass out of their hands, particularly at a time when the prospects of the company are so bright as just now. At present over one hundred tons of pulp are being made daily at the mill, nearly all of which is shipped across the boundary. The 70-ton sulphite mill, however, lies idle. This would be enough to combine with the product of, say, a 200-ton ground wood mill in the manufacture of paper. The sulphite mill has been recently materially improved, and will likely be started up soon. Arrangements may be made with American publishers for taking the product of a paper mill when established, but this is likely to be the extent of truth in the reports.

PRINT PAPER IN THE UNITED STATES.

In the course of a letter to the New York "Journal of Commerce," Arthur C. Hastings, president of the American Paper and Pulp Association, writes:—

Under the Dingley Act we have seen an increase from 1899 of 50 pounds of printing paper imported up to 42,000,000 pounds in 1909, and at the present rate of importation it will amount to about 120,000,000 pounds in 1910. In addition to the above the paper manufacturers of this country have had to face enormous increases in the importation of different classes of wood pulp—some of which comes in free—all of which represent a large component part of news paper. One quality comes in free under the Payne tariff, 25,000 tons of which were imported in the month of August, and at a price higher than it was last year under the old tariff.

Great Britain, under "free trade," in 1890 was selling news paper at \$77 per ton, as against the price in the United States of less than \$70. In 1895 they were getting \$52, as against the price in the United States of \$45; in 1900, \$48, as against the price in the United States of \$44; in 1905, \$43, as against the price in the United States of \$42.75; in 1908, \$44.20, as against the price in the United States of \$44.41. During all this time we were protected at the rate of \$6 per ton; in other words, the American publisher did not pay the duty, but any paper that came into the United States the duty was paid on it by the exporting country.

France has a duty of \$22.80 per ton; Germany, \$12.80 per ton, and in one year only that we have any record of, viz., 1890, did either of these countries sell its paper at anywhere near the low prices prevailing in this country, and the United States has a production of probably 40 per cent. of the entire production of the world.

Canada is shipping in paper here in large quantities, which has displaced an equivalent tonnage which could and

would have been made by mills in this country, and has put out of employment just so many men that would have been required to produce the paper. The publishers as a whole are not treating the manufacturers of paper and pulp in this country in the same manner that they are considering other industries.

Is it a fair proposition to say to one country, you may have our market for the finished product if you will let us have your raw material? Following this out to the logical conclusion, we should stop the exportation, if it were possible, of our raw material, viz., coal, cotton, etc. If it came to a general reciprocity between the two countries—affecting all manufactured goods and all raw materials—that would be one way, and probably solve the whole trouble, but to attack one particular industry, which is highly reputable, and leave all others out of consideration is particularly un-American.

To this the "Journal of Commerce" replies in an editorial, from which the following extracts are taken:—

On the first of August, 1910, there were 28,220 tons of news print paper in stock at the mills, which is not a seven-day supply for all the newspapers of the country. In the months of July and August, when the domestic market was extremely bare, the paper-makers exported 7,440 tons of news print paper. The Canadian importation for the same months was 8,441 tons. Those figures do not show any considerable displacements of American paper by Canadian mills. For the month of August the exportation of print paper was 3,465 tons, and the importation from Canada was 3,802 tons. That exportation looks as if it were part of a programme to starve the paper market and maintain artificial prices of news print paper. It is extraordinary that while that large exportation was going on the leading paper-makers refused to quote any prices to domestic consumers during July, August and September for supplies during the year 1911. Mr. Hastings overlooks the fact that of the 1,200,000 tons of news

print paper used annually in the United States, the importation of 60,000 tons from Canada will be only 5 per cent. of the total consumption. No one can pretend that such a percentage indicates a serious menace to the paper trade, especially in view of the fact that news print paper-makers resort to shut-downs for the restriction of production. The paper-makers refuse to sell their paper f.o.b. mill. They adopt all the essentials of gentlemen's agreements by restricting the use to which their products may be put. They restrict sales to particular purchasers, and they insist upon knowing the destination of all the paper they sell, and whether the applicant has a contract with any other paper-maker. They tax consumers \$6 per ton on account of unnecessary weight. They refuse to make or sell other than 32-pound print paper. They limit contracts for supplies to one-year periods. They sell in such a way that bills for 50 million dollars' worth of paper per annum are not susceptible of accurate verification. They operate their mills with low-priced managers. The leading print paper-maker of the country has bought undeveloped water sites capable of producing 104,000 horse-power obviously for the purpose of stopping competition. Some of the paper-makers sell abroad at a lower price than they sell to American consumers, Sheffield, England, furnishing a notorious instance of this discrimination. A difference of \$11 per ton between the domestic and foreign price has been reported. These matters have been under the scrutiny of the Department of Justice.

The association which Mr. Hastings represents is made up of seven groupings of paper interests, of which three, the wrapping paper, the boxboard and sulphite pulp divisions, have been caught red-handed by the United States authorities in the most objectionable form of illicit trade combinations; while a fourth division, news print, was made the subject of a ten months' investigation by a Congressional committee.

NEW MILLS FOR PRICE BROS.

Messrs. Price Brothers & Company, Limited, lumber merchants, having large saw mills in various parts of the province, and with head office in Quebec city, have acquired all the stock of the Jonquieres Pulp Company, who have been operating on the River Au Sable at Jonquieres for a number of years. This company manufactures thirty-five tons of paper and cardboard daily, and have 340 square miles of timber limits. They grind their own wood pulp and make their own sulphite, and also have a saw mill in connection with their plant, and they own an undeveloped water-power on the Au Sable River. The amalgamated firm intend to develop the water-power on this river and operate the extensive Saguenay limits of Price Brothers & Co., Limited, which are adjacent to the mill site.

Mills will be built to manufacture 150 tons of news print daily, and will consist of the usual ground wood pulp, sulphite pulp, and paper mills. The available head of water at the mill site is 282 feet, which will give some 14,000 horse-power. As the Jonquieres Pulp Co. have been operating on the river for a number of years the flowage and general water conditions are accurately known.

Already a railway siding 1½ miles long is ready for operation, and construction work will be started immediately in the spring.

The mills will be fireproof construction throughout, and will be equipped with the latest approved machinery, and it is expected that by the spring of 1912 paper will be on the machines.

Mr. George F. Hardy, of New York, is now at work designing the plant, which is a sufficient guarantee that the installation will be on the latest approved lines.

Mr. Oswald A. Porritt, for a number of years managing director of the Jonquiere Pulp Co. and the Price-Porritt Pulp and Paper Co., will be general manager of the mills.

The company have acquired a large tract of land in the immediate vicinity of the new mill site, and intend following out the best traditions of British commercial enterprise, leaving nothing undone to conduce to the comfort and health of the employees. On this tract of land, which is very suitable for a town site, houses, cottages, etc., for employees will be erected, and it is expected that a town of considerable dimensions will soon take the place of what is now farm land.

The mill's name will be "Kenogami Paper Mills," as it is from Lake Kenogami that the river flows, and the present postal address is Price Brothers & Co., Limited, Kenogami Paper Mills, Jonquieres, Que.

The mills are situated about ten miles from Chicoutimi and twenty miles from St. Alphonse, with railway connections to each town. Both of these ports are on tide water, and at St. Alphonse the largest ocean steamers can tie up alongside the wharf. Thus for receiving heavy freight, such as coal, sulphur, etc., and shipping "roll news" the world over, the mill is particularly well situated.

It is expected that the new mills will provide work for about 800 men beside the men employed in the woods and logging operations. This will certainly be of immense benefit to the district.

Messrs. Price Brothers & Co. were the pioneers of the Saguenay, and have lumbered in this district for one hundred years, and the monument erected by the local inhabitants at Chicoutimi to the late "Mr. William Price" describes him as the "Father of the Saguenay." The present William Price is a member of the Federal House, and sits for Quebec West. He is president of the company, and has other large interests all over the province, is recognized as being one of Quebec's most enterprising citizens, and it is owing to his enterprise and careful thought that this large industry is becoming an established fact, so that not only are Price Brothers & Co. pioneers of lumbering, but also are they

pioneers of paper-making in the Saguenay and Lake St. John districts.

The Quebec Legislature has authorized the change of the company's name to Price Brothers & Company, Limited, and an increase in capital stock to the sum of \$5,000,000, the object of the new charter being to acquire, take over and carry on as a going concern the business now carried on by Price Brothers & Co. at Quebec, Montmagny, Batiscan, Rimouski, and elsewhere, and to acquire, own, and operate saw mills, shingle mills, and rossing mills, pulp and paper mills, and manufacture wood, pulp and paper products; also to acquire any or all the shares in the Price-Porritt Co., Jonquieres Pulp Co., and Montmagny Light and pulp Co.



—A new Swedish Royal Decree provides for the following duties (export, presumably) on wood pulp manufactured in Sweden: Chemically prepared, dry, 50 öre per ton; mechanically prepared, dry, 30 öre per ton. Half the foregoing rates apply to wet wood pulp. The decree does not apply to wood pulp manufactured in the Gothland district or made from timber from the Provinces of Gothland, Vesterbotten or Norrbotten, or the Serna district of Kopparberg.

—The Canadian Trade Agent in New Zealand says that a large business is done there in printing paper. Representatives are there now of Canadian and English houses. There has been much complaint as to the condition of the rolls when they reach here. In this connection it is satisfactory to know that the paper which arrived on the "Rakaia" was in excellent condition. The Commissioner saw the paper taken from the vessel. It certainly bore no trace of being hooked, and in other respects was undamaged. Canadian manufacturers have a good opportunity, he says, to control the business, but, to do so, they must keep in closer touch with the consumer, because the English and United States houses are very aggressive, and send out good men to promote their interests.

RELATIONSHIP OF PULP MILL TO PAPER MILL.

There are three characteristics of wood pulp that enter largely into the economics of the paper mill, namely, cleanliness, moisture, contents, and bleaching qualities. There are other points of relationship affecting details of finish and beating, but in this paper it is proposed to consider the points above mentioned, which are sometimes different or correlated effects of the same causes, as, for instance, when fine dirt is present as a result of insufficient water in treatment for opening and washing; this affects its cleanliness, its bleaching economy, and indirectly its moisture content.

I. Cleanliness.—In cases where rossed pulp-wood is transported by rail or steamer, the conditions attending loading and unloading deserve close attention. Some dirt from the vat of a news machine was found to contain a very large proportion of unburnt coal. In this works pulp-wood was conveyed into the mill from the cars on the same conveyer as the steam coal.

Perhaps the most important point in the dirt problem is the wood-room at the pulp mill. To prevent waste from excessive cutting in the barker, and at the same time prevent the introduction of rotten knots or gum seams to the chipper, requires intelligent consideration. A 10-inch block may be trimmed down to 8 inches in an attempt to take out a gum seam which should only be treated with an axe by hand. Too much reliance is placed on machine work in many mills. A good splitter and a few good men with axes will prove profitable in the wood-room, and remove a cause of much heartache to the paper-maker; for once the rotten knot is in the digester, a large proportion of its contents will surely find its way to the finished paper.

* A paper by T. Linsey Crossley before the Canadian section of the Society of Chemical Industry.

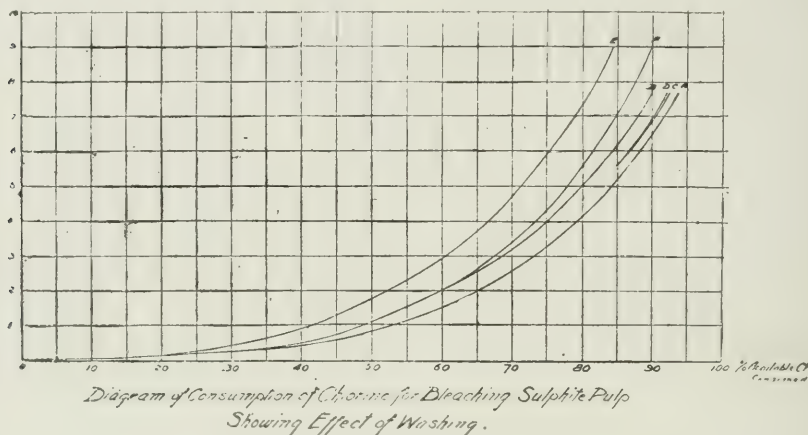
The pulp-maker endeavors, of course, to turn out good qualities of fibre, but chips may get charred round the steam inlet over larger or smaller areas, or acid may not be properly distributed in the digester, resulting in raw chips. Both these abnormal products are intimately mixed with the stock when the digester is discharged, and resort is had to various mechanical devices to try to eliminate them. The success of these devices depends in most cases on the proper appreciation of their capacity, limits, and functions; i.e., a screen is a screen and not a conveyer. In many cases the capacity is overtaxed, resulting in wasteful tailings, which apparently affects only the pocket of the pulp man, but he does not by any means pay all the bill. He may screen these tailings and run the finest back to the stuff-chest as good, or he may put them through a grinder to mix with stock from his save-alls and get rid of a lot of it to the paper mill in the form of wet laps, which will probably take 25 per cent. or even 50 per cent. more bleaching powder than his best quality. Various forms of riffles and flow-boxes are used for the sedimentation of the heavier dirt, but often a pulp mill has not been designed in such a way as to allow a sufficient amount of water to thin the stock and the dirt is carried along. The weight of the stock tends to force soft dirt through even the reliable flat screen, and much more through the various forms of centrifugal or revolving screens.

Pulp Mills would often sort their stock to more uniform grades if adequate provision had been made for this in designing the mill; i.e., large and well-arranged warehousing. A small machine for making wrapping would in many cases be not only profitable, but would remove the temptation to keep down the screenings pile at the expense of the No. 1 stock.

II. Moisture Contents.—There are several important considerations affecting this point, yet these may be traced to, and in large measure could be remedied at, one part of the pulp mill; that is, the stuff-chest in its relation to the wet end of the drying machine or the vat of the wet machine, if the product is in wet laps. The maximum variation of moisture in the wet lap is very much less than that in the dry pulp, and thus

bulk, but here another difficulty presents itself; many pulp mills do not put up their product in packages of equal weight. This is not a difficult thing to do, and it would materially assist in correct sampling, permitting the taking of a test sample from some stated weight, say, every 1,000 pounds.

III. Bleaching Qualities.—Given a fairly well-cooked sulphite pulp, its bleaching quality depends, in very large



it is a simpler matter to take an average sample. Dry pulp may vary more than 30 per cent. as running on the machine, and if everything is not in first-class order, there may be a variation of from 3 to 8, or even 10 per cent. between the moisture test at one side of the sheet and that on the other. It is this great variation that makes adequate sampling difficult. It arises from several causes; e.g., insufficient steam in the driers, not as many driers as there should be, the desire of the machine tender to put out a heavy run, and other minor causes; but the trouble may often be traced to the fact that the stuff-chest is not large enough to maintain a reserve, resulting in the production of alternate thick and thin sheets, incidentally bringing with the thin sheet much of the accumulated dirt at the bottom of the chest. This variation in the sheet renders inaccurate any system of testing which relies on equal area of strips or sheets. A test for this class of pulp must take account of

measure, upon its treatment between the digester and the drying machine, and in some measure upon its passage over the drying machine.

From observation of the bleaching of sulphite pulp received as wet laps and that received in the machine-dried form, both of nearly equal paper-making quality, it seems probable that some of the bleach-consuming impurities in the stock were eliminated either by oxidation or evaporation upon their passage over the drying machine. The pulp received as wet laps when first received required from 15 per cent. to 18 per cent. of its weight of bleach, though as result of better treatment noted below, the consumption of bleach was reduced to from 12 per cent. to 15 per cent., whereas the pulp received as dry seldom required more than 12 per cent., and should, with a more modern arrangement or a little more time, not require more than 10 per cent. of its bone-dry weight for good book bleaching.

It is an open question whether the quick-cook, blow-off system as used at present does not produce a pulp which is expensive to bleach; with slower cook and the dumping system, a more economically bleaching pulp is produced. It is quite possible for a sulphite mill to cook pulp for one or the other of two main classifications, not merely cooking all the pulp they can handle, and selling for all purposes irrespective of quality. These two main divisions might be: (a) Slowly cooked, dumped and well-washed pulp to be bleached for "book," "magazine" and "writing." (b) Quickly cooked, blow-off pulp for news, manilla, etc.

The effect of more generous use of water in washing pulp was shown in a make of pulp in wet form which, during a period of low water, was taking an equivalent of about 18 per cent. of its weight (bone-dry) of 36 per cent. powder, but later, after more careful washing, was bleached in less time with about 15 per cent. of its dry weight of powder. As a result of a series of experiments, of which the diagram above is representative, it was concluded that a more economical pulp for bleaching may be produced by a hot-cold-hot series of washings, running off over a drying machine to finish at about 90 per cent.—95 per cent. air-dry. Pulp over 95 per cent. air-dry does not disintegrate quickly in the bleaching tubs, and the bleach does not penetrate so well as with pulp containing a little more moisture. The washings referred to do not, as a rule require any more plant than pulp mills are usually provided with, saving, in some cases, a more adequate water supply. The first hot wash can be given by running water in with the stock when a digester is being discharged; the heat of the pulp from the digester being sufficient to bring the whole mass up to a sufficiently high temperature to wash out much of the resinous liquor remaining in the pulp after draining in the digester. The size-man and the beater-man are often in this matter the scapegoats of the pulp-maker, for many of

the resinous spots found in the finished sheet may be easily traced to the sulphite mill. The pulp now in the blow-pits can be drained and washed once more with cold water, or may be taken after the first hot wash into the system, relying on the flow-box, strainers, and screens for the subsequent cold washing. In most mills there are arrangements for thickening the stock before it goes to the machine chests. In cases where this is not so, such machinery would have to be installed, as the stock flowing to the machine should be fairly uniform in fibre content. The final hot washing is to be done at the wet end of the machine by means of a continuous sheet of hot water running on the pulp before it comes to the suction boxes. This arrangement not only improves the bleaching qualities of the pulp, but materially aids in the elimination of moisture at the suction boxes by reducing the internal friction. It is sometimes difficult to secure the flow of hot water on the felt in a continuous sheet without breaking the pulp sheet, but it can be done, and will pay both in freight and bleaching quality.

With the above considerations in mind, more valuable pulp for paper-making may be produced, and friction between the pulp mill and the paper mill be avoided by attention to the following points:—

I. More careful culling of wood blocks.

II. Provision for hot washing at time of dumping and ample water supply for sedimentation of dirt. As a basis for water in the flow-boxes and riffles, a supply of water should be provided that will reduce the fibre contents at these points to 0.5 per cent.

III. Stuff-chest reserve sufficient to maintain average sheet on drying machines for at least one hour and a half.

IV. Proper and uniform steam provision for dryers on machine; a sufficient number of dryers to dry sheet without overheating; a regulation of stock at wet end of machine and provision for hot water treatment at this point.

V. Sampling of individual packages on loading in preference to sampling at machine. Bales or packages to be made as nearly as possible of equal weights to permit of samples being of uniform bulk from same weight of pulp.

Treatment on the above lines would produce a pulp that would require, on the average, about 10 per cent. of its bone-dry weight of 36 per cent. powder for bleaching instead of the 12 per cent. to 20 per cent. limits now expected.

Explanation of Diagram.

Stock used, wet laps, vacuum system with blow-pits.

Bleach strength equivalent to 13 per cent. of 36 per cent. powder calculated to air-dry stock.

Amount of bleach, water, and stock were the same in all cases.

A.... Pulp as received.

B.... Pulp after washing in cold water.

C.... Pulp after washing in boiling water.

D.... Pulp washed in water at 110° F.

E.... Pulp washed over night in cold water, squeezing and soaking again over night at 212° F.

F.... Pulp after being dried bone-dry in oven at 212° F. for 15 hours.

B, C, D, and E were best color and about equal.

It will be noted by referring to "C" and "D" curves that there was no economy attained by the much higher temperature of "C" as compared to "D." "E" of course represents an extreme case. Maximum color was attained about the seventh hour and with a variation of about one-sixth of the bleach between the two extreme cases.



The council of the St. John, N.B., Board of Trade have recommended the acceptance of the offer made by Geo. C. Cutler to lease the Mispec pulp mill at a rental of \$2,500 per year, with option of purchase for \$30,000, but without the granting of any water rights.

MANUFACTURE OF KRAFT.

By Aug. Abadie, Paper Mill Engineer,
Lalande-Toulouse, France.

1. During the years 1887 and 1888, in the course of a series of travels among the paper mills of Europe, and principally those of Austria, Germany, Russia, and Scandinavia in general, I published a number of circulars on the manufacture of cellulose, and in particular on the sulphate of soda process, and the means of obtaining with this pulp an exceptionally strong paper. The same manner of working that I at that time endeavored to promulgate, has since been, at least partly, applied, and the result has been the so-called kraft paper, so greatly in request at the present time, that it seems called on shortly to replace all other sorts of wrappings. This will, in particular, be the case when the makers of kraft shall have succeeded in making a sheet that shall be thinner, more uniform, better impermeabilized, or waterproofed, in fact when these papers shall, in every respect, have the fine aspect of those that we make in Europe, and above all when they shall have received the special sizing made and composed for these sorts.

According to my personal experience, kraft can be obtained in several ways. That employed in Sweden is based on the ordinary so-called "sulphate process," with a minimum time of cooking in the digester. This shortness of cooking, that I at once adopted, on the first appearance of the sulphate process, may vary according to the nature of the wood employed, and should be the more reduced in the case of treating resinous wood of a soft kind, for it must be borne in mind that botanists distinguish from eight to ten species of coniferous wood, and each one must naturally be treated according to its organic constitution:

We have: the fir (abies), the pine (pinus), and the larch (larix). The abies taxifolio is soft, this wood is white, it is not rich in rosin, and, used for making sulphite cellulose, gives a beautifully

white pulp. In the varieties of "pinus," we have the "pinus laricio," the "pinus muglius," the "pinus silvestris vulgaris," very rich in rosin; the wood of the latter is hard and close, and for these reasons should be particularly adapted for making kraft. The "pinus maritima" can be used for the same end.

Whatever the varieties of resinous wood that I have had the opportunity of using, I have always noted that too high temperatures should not be used, nor the time of cooking be too long, for obtaining a fibre suitable for kraft. The principles above espoused for the choice of the wood and length of the operation, lead me to say that for making kraft it is well to be able to dispose of a sulphate cellulose plant. As already known, the fibre necessary for kraft papers demands a more powerful method of beating than in the case of ordinary cellulose. To obviate this drawback, this fibre should not be trituated in beating-engines, whose cylinders are furnished with metal knives; it is indispensable for this trituration, to use edge-runners, or koller-gangs, whose periphery turns on the horizontal bed-plate, whose surface is furnished with flat metal teeth. These teeth do not chop the wood fibre as do the knives of the beater, they crush the wood by a kind of mastication, and it is the latter that imparts to the hard fibres of the kraft their great strength. Another advantage of this mode of trituration is that the fibres are not drowned in the water, as in the beating-engine, and by this means there is no floating washing that can destroy or weaken the rosin gum that may still remain in the wood; it is this same gum, inherent to resinous wood, that, only slightly diluted by reason of the weak cooking, gives to kraft paper its characteristic strength and constitutes one of its merits. This bedplate with flat teeth is easy to adapt to all existing koller-gangs or edge-runners, and the service that it does is incalculable, not only in the case of kraft, but likewise in that of all paper making materials.

It is frequently possible, in a paper mill, to annex a plant for making sul-

phate cellulose, in particular where ground can be made use of close to the mill. I have set up such a plant, for a limited production, it is true, but which has given sufficient pulp for improving the quality of the paper previously made in the mill. This kraft pulp gives body to all the fibres with which it is mixed, whether ground wood cooked without chemicals, scraw, or waste papers. Kraft pulp costs infinitely less to make than does any other sort of cellulose. A sulphate plant, able to make kraft pulp is relatively inexpensive, compared to the cost of a sulphite plant. The outlay for the raw materials is likewise inferior, the labor is less, and for those who possess a recovery and calcining furnace contiguous, the cost in coal is insignificant, because this furnace feeds itself with the combustible resinous matter that remains in the waste waters and proceeds from the cooking of the wood.

It is a very difficult matter to find sulphate cellulose suitable for making real kraft in conditions of perfect regularity. The pulp obtained from abroad, such as it proceeds from the mill, is just as it is, namely, good, bad or indifferent; it should, therefore, not be a matter for surprise if kraft papers made from such pulps, whose quality is variable and uncertain, do not meet the requirements of the purchaser.

The difficulties formerly attached to the manufacture of sulphate cellulose have frequently been objected to and in particular have been greatly exaggerated. A great deal has been said of the vast amount of motive power required for tritulating kraft pulp; we have nevertheless now demonstrated, that if vertical rolling stones, otherwise denominated koller-gangs, or edge-runners, are used, whose bed-plate is furnished with flat metal teeth, the required power is considerably reduced, and it is rather inferior to that of an ordinary engine, beating cotton-rags. People in general are wrongly informed as to the so-called obnoxious smell that proceeds from the calcining furnace. This assertion is a mere invention, for this smell scarcely exists now.

compared with its intensity at the time when sulphate was first used, and when shovelfuls of this material were thrown direct into the furnace.

It is asked me whether it would be possible to manufacture a cellulose for making kraft, in a mill already constructed for sulphite. To this I am to reply affirmatively, notwithstanding that there is nothing common between the two systems, apart from the manner of preparing wood before cooking. In a sulphite mill it is advantageous to annex a sulphate plant, because the residuary liquors proceeding from the manufacture of sulphite cellulose, modified after being extracted from the digester, are of great use in preparing a fresh cellulose, possessing the properties requisite for making kraft. The sulphurous agents contained in the waste liquors of sulphite have a potent disincrustating action on the resinous matter contained in the wood. The question of the digesters, whose construction differs greatly in the two methods, has no appreciable importance; the modification requisite in the sulphite digesters is a simple inward arrangement, by means of which, alternatively, the wood can be cooked with sulphite or with sulphate. In consequence of this, a plant disposed for sulphite pulp can likewise make sulphate, without destroying what exists, and merely adding what is wanting.

The greatest existing difficulty is not among those above resolved, but rather in the want of initiative on the part of those whose interest it would be to do what would be necessary for making or improving a product whose success is beforehand assured. This, however, has been done by many manufacturers in Europe, as soon as they perceived that by making kraft they would be able advantageously to increase the production of their mills. Under the pretext of being conservative, it is not well to keep up old customs when something new appears that it would be in our interest to take up, nor to put off doing so until foreign products shall have thrust themselves on the market. The imitation kraft papers that central Europe ships to

America are indisputably better manufactured than are those of Scandinavia, they are better sized, better finished, more water-resisting, and have a more pleasant aspect; it is therefore not a matter for surprise that, in many cases, these papers should be preferred. There is, however, no possible reason why the paper makers of other lands should not make these sorts just as well, if they will only take the trouble to install their mills in consequence.

2. Notwithstanding that this article has been specially written with a view to the manufacture of sulphate cellulose for making kraft, I wish to add some little information regarding a particular sort of white paper intended for couching, and specially made for reproducing the drawings of engineers, architects, machinery constructors, etc. This paper requires a special and irreproachable sizing, about the same as that used for photographic papers, which are likewise submitted to washing and to baths. No other size could replace that required for these two sorts of paper, the result being that each mill should be in position to make its own size, appropriated to the stock used in the mill. In the technical periodicals that treat of paper making, we have read that this class of paper, such as it is made in certain countries, is unfit for the object in view; the paper, it is said, does not hold in the water, it becomes soft, and shrinks when the print is washed, thus causing the drawing or plan to be inexact or false; the print is likewise not sufficiently fixed, and even only a short time after couching, is full of spots. All these defects mostly proceed from a badly composed stock, and from the size made use of, which probably has not been specially prepared for this kind of paper. The consequence of this is that the firms that require such papers are obliged to purchase them from French or German makers.



Fire broke out in a large pile of rossed pulp-wood, owned by the Miramichi Pulp and Paper Co., Chatham, N.B., but was finally extinguished.

MAGNESIA IN SULPHITE MAKING.

By J. A. DeCew, Montreal.

The value and use of magnesia as a base in bisulphite solutions is a matter of interest to the sulphite manufacturer in accordance with his technical requirements, or more or less favorable manufacturing conditions. It is, of course, a recognized fact that a sulphite mill which uses a good quality of wood, and has a well controlled acid system, can make a good, strong, hard fibre with a calcium bisulphite solution, which may be quite satisfactory for news print or wrapping paper. At the same time a mill with this practice will occasionally meet with difficulties resulting from the insoluble sulphites and sulphates of calcium, which are so easily deposited within the digesters or blowpits. Should this trouble arise to any extent it is quite likely that the superintendent will reduce the percentage of base in his raw liquors, and this action will probably result directly in a weakening of his stock. He finds himself, therefore, between two difficulties, and can only vary his practice within very narrow limits without getting into trouble.

As a result therefore of experience, perhaps, more than research, the practice of using dolomitic lime carrying rather high percentage of magnesia has become quite general. The experience gained with this material has considerably reduced many of the mill troubles, and also raised the standard of the quality of the product of many plants. The introduction and success of the lime systems, which are replacing the use of stone in towers, is no doubt largely due to the increased use of dolomites high in magnesia, which can be shipped cheaply when calcined to those plants where local stone is not suitable for the work.

That the full appreciation of magnesia as a base has not yet arrived, however, is due to the fact that until very recently the only important deposits of magnesite

known have been on the Pacific coast. As this is available to the mills on the West coast, they have learned of its advantages, and use it to a very large extent in place of lime. Where they would use a base of which not less than 60 per cent. was MgO , the Eastern mills cannot obtain from their dolomites a base with more than about 40 per cent. MgO . If, then, the higher percentage of magnesia is any advantage, the Eastern mills would appear to be less favorably situated in this respect.

Magnesia is a stronger base than lime, and has a more solvent action on the free rosins of the wood than a calcium solution. It also leaves no residues in the stock which are injurious to sizing agents. When higher grades of pulp are required, or when inferior quality of wood is used, the direct advantages of a high percentage of magnesia become quite distinct, and no doubt many mills will be so situated that this would be of particular interest to them.

The writer had occasion some time ago to examine a sample of sulphite fibre in the manufacture of which MgO alone was used as the base. Microscopically it was almost perfect fibre, with sharp outline, pointed ends, and almost hexagonal in shape, from the fact that the fibres lie flattened against each other in the wood. The ash content of this fibre was .26 per cent. and the resin content .43 per cent. As the amount of resin in spruce wood is generally over .40 per cent., it is evident that over half of this resin has been dissolved by the bisulphite liquors made from magnesia.

If the papermaker should find some very small resin globules adhering to the fibres of his sulphite stock he would have an explanation for some of the difficulties he experiences with the pitch that fills the meshes of his wire. Such troubles as these are what stand in the way of

the use of pines in the sulphite process, and if in the experiments in this direction there were the proper knowledge and application of magnesia as a base, more favorable results would certainly have been obtained.

Some distinctive chemical differences between magnesium and calcium as bases in sulphite making are as follows:

For all practical purposes the sulphites and sulphates of magnesium are soluble in water, while those of calcium are insoluble.

The combining weight of MgO is to CaO as 40 is to 56, so that 72 pounds of magnesia will do the work of 100 pounds of lime.

The chemical action of magnesia as a base resembles more nearly that of soda than calcium, and seems to make a cleaner separation of the ligno-cellulose of the fibre, thus leaving the cellulose in a condition the more easily to bleach. The ease with which magnesia sulphite stock is washed may also have something to do with its easy bleaching qualities.

It is claimed that the waste liquors from a magnesia sulphite cook are much less obnoxious when discharged into streams, but whether this claim is substantial or not, the many other advantages of magnesia are apparent from the standpoint of both mill economy and quality. As the necessity for using inferior woods for pulp manufacture is continually growing more pressing, and as the competition with European grades is always keen, there will no doubt develop a wider use of magnesia in sulphite making if the material becomes more available to the trade.



The Fibre Board Folding Package Co., Limited, which contemplated the erection of a factory in Woodstock, Ont., has cancelled its agreement with the city, the promoters having been disappointed in the amount of financial support received. A by-law to grant a free site had been favorably received by the ratepayers.

THE CORROSION OF METALS BY PAPER.

By Arthur D. Little.

Official Chemist, American Paper and Pulp Association.

Although a well-made paper composed of properly purified vegetable fibre must be regarded as entirely without effect upon metallic surfaces with which it may be left in contact, there have, nevertheless, been noted many instances of serious corrosion of metallic articles under conditions which point to chemical action between the metal and some constituent of the paper in which the article has been wrapped. Manufacturers of silverware and plated ware, and especially makers of the cheaper grades of plated jewelry, have at times experienced heavy losses due to tarnishing and corrosion set up by the paper used for wrapping or the cards on which their product has been mounted. Hardware dealers, and especially those carrying hand tools, have similarly suffered, and examples are not wanting of equally destructive action upon type.

A notable instance of the corrosion of type by an impurity in the wrapping paper has recently come under the observation of the writer. As the result of a fire in a large type foundry much of the type wrapped in papers was drenched with water, and in consequence so severely corroded as to be rendered unfit for use. Examination of a number of the suspected wrappers showed them to be free in every case from acid and from chlorine, but they all contained sulphur. The papers were all good grades of sulphite wrapping, containing in some cases a proportion of jute.

There are perhaps extremely rare instances in which, through use of a very acid alum as a factor in the sizing process, the reaction of a paper may remain sufficiently acid to induce corrosion when the paper is brought into contact with a metallic surface in a moist atmosphere, just as there are rare cases

in which the operation of bleaching has been carried out so carelessly as to leave bleach residues in the paper, which again may set up corrosion under appropriate conditions, but my laboratory study of many cases of corrosion ascribed to paper in the last twenty years has shown in substantially every instance that the trouble was due to sulphur.

One does not have to go far to account for the presence of this sulphur. Most wrapping papers now in use and much card stock contains a notable proportion of sulphite fibre commonly prepared from spruce wood by boiling in a solution of bisulphite of lime. The manufacture of the bisulphite solution involves the burning of sulphur and the absorption of the sulphurous acid gas thus produced in milk of lime. If the temperature of the sulphur burners is allowed to run too high, some sulphur is volatilized and may be carried into the liquor as free sulphur, which being insoluble cannot thereafter be washed out of the pulp. The unduly high temperature of combustion conduces moreover to the formation of polythionic acids in the cooking liquor, which acids during the cook are decomposed into simpler acids with deposition of sulphur in the pulp.

Sulphite fibre must, therefore, be recognized as by far the most frequent source of sulphur in paper, and for that reason should be excluded from the finish for jewelry cards and wrappers or other papers, the intended use of which involves contact with metallic surfaces.

Sulphite fibre is not, however, the only source of sulphur either in the free form or as the equally objectionable sulphides. Certain special papers in small amount are sized with the material known as "viscose," which is a water-soluble compound of cellulose prepared by treating vegetable fibre with caustic soda and bisulphide of carbon. The viscose is added to the stock in the engine and thereafter decomposed by alum or magnesium sulphate with precipita-

tion of the gelatinous cellulose and separation of sulphur and sulphur compounds through the stock. Viscose-sized papers possess many advantages of strength and toughness which adapt them admirably to use as wrapping, but they should never be used in contact with metal.

A third source of sulphur compounds is found in papers made from sulphate pulp which occasionally, when the stock has not been sufficiently washed, contain sulphides and organic sulphur compounds, as evidenced by the odor of the paper. While the amount of these is very small, it is sufficient in some instances to cause tarnishing of silver surfaces.



MACHINE WIRES.

The wearing of the machine wire by mechanical abrasion chiefly takes place as it passes over the suction boxes; a writer in the *Papier Fabrikant* points out, however, that another source of wear exists in the friction of the wire on the tube rolls. The friction which takes place here is in the lateral direction at right angles to the direction in which the wire is travelling and contributes far more to the speedy destruction of the wire than might at first be supposed. It is mainly caused by the fact that the movement of the tube rolls under the action of the shake frequently takes place independently of the wire. This lateral friction is greatest when there is too much space between the guiding disc on the roll spindle and the bearing block. At every stroke of the shake the rolls then receive a momentum which causes them to slide to and fro in their bearings. On the other hand, a certain amount of looseness is necessary to ensure free rotation of the rolls, otherwise they will stick and abrade the wire as it passes over them. The amount of wear by lateral friction is of course greater, the faster the shake and the longer the stroke. The friction on the wire is worse when the bearings of the tube rolls are rigidly fixed to the shake frame of the machine. In this case each bearing has

to describe the arc of a circle at every stroke of the shake, and the amount of play allowed both in the bore of the bearing and in the distance between the guiding discs has to be comparatively large to allow of free rotation of the roll. This looseness tends to increase in the course of time until it causes a very serious source of friction on the wire. In all machines, therefore, the bearings of the tube rolls, at any rate of those rolls situated near the breast roll end, should be mounted on the shake frame on vertical spindles, so that the rolls always remain at right angles to the line of travel. With these rotatable bearings the amount of play necessary to allow the rolls to revolve may be reduced to a minimum. In the absence of self-adjusting bearings the excess of play should be taken up by putting in thin washers on the outer side of the bearing between the end discs of the tube roll spindles and the bearing blocks; this, however, is not a satisfactory means for eliminating the lateral friction. The bearings of tube rolls should not be lubricated with thin machine oil, as this tends to run away too fast. A thick oil should be used, such as oil recovered from the cylinders or bearings of the steam engines.



MANUFACTURE OF COPYING AND PRINTING PAPERS, &c.

Naturally all kinds of printing paper should have as smooth a surface as possible, unglazed or lightly glazed papers have an irregular porous surface which interferes with smooth printing. The colors appear broken up, dull and irregular; the ink does not go on to the paper easily; and far more color is required than with smooth papers. This necessity for overloading the type or block causes spreading and dirty prints; in the case of stones it necessitates frequent washing and retouching. Moreover, the heavy pressure which is necessary for printing on poorly glazed paper injures the type or stone more or less severely according to the hardness of the paper.

Before glazing many papers require a special damping if the surface is to be much improved. It is most advantageous to glaze the paper in reels, but this causes a stretching of the paper in the direction of its travel. Any paper which is required not to stretch during printing should always be stretched first by glazing them again in the direction at right angles to the machine direction by means of a sheet super-calender after it has been cut up into sheets.

Another disadvantage to the sheets is the practice of hot calendering on account of many edges appearing a few days after glazing; this is due to the fact that the sack of sheets retains the heat absorbed from the hot calender roll, the edges then cool off on storage and absorb moisture from the atmosphere whilst the insides of the sheets remain hot and dry. The thinner the substance of a paper the more heavily it may be glazed; if the thick papers be too heavily glazed they are liable to split when printing with a stiff ink.

A very important item to consider is the uniformity of temperature in storage; if a paper packed flat be transferred to a cold room the edges become waxy, but if it be taken to a warm room the waxiness disappears. All papers containing glycerine on the other hand should be stored in a cold moist temperature.

Paper should not be printed until it has been exposed in small packs in the press room for several hours.

Now, in the case of manufacture of copying papers some of these are specially prepared so as to retain a certain moisture, which permits of them taking copies by means of the ordinary presses and copying machines usually employed in commercial offices without previously moistening the paper.

To this end such papers are impregnated with a solution of an hygroscopic salt with or without glycerine, or they are impregnated with a mere solution of glycerine, more or less diluted in water, according to the effect to be produced.

(To be Continued.)

PULP AND PAPER NEWS

The Brompton Pulp and Paper Co. is employing a large staff of men on its new buildings, construction of which is making good headway.

* * *

There are large quantities of logs still in the St. John River and tributaries in New Brunswick which it will be impossible to get out before spring.

* * *

Geo. A. Howell, of the Howell Co., Toronto, dealer in pulp and paper stock, has been on an extended business trip to New York, Chicago, Philadelphia, etc.

* * *

Grand Falls, Nfld., the site of the great Harmsworth pulp and paper plant, has been suffering from a severe epidemic of typhoid.

* * *

James Crabbe, Toronto, who was president of the Merchants' Counter Check Book Co. until a few months ago, when he retired, is dead.

* * *

Joseph Leclerc, employed as a clerk with the Chicoutimi Pulp Co., has mysteriously disappeared, and it is feared he fell overboard a tug and was drowned.

* * *

Pulp-wood is one of Quebec's most valuable exports. Last year the shipments amounted in value to \$949,549, an increase in two years of over 100 per cent.

* * *

The Western Canada Bag, Envelope and Box Board Co. has now almost completed its factory at Sapperton, B.C. Operations will begin shortly with forty men employed, which number, it is hoped, will be materially increased shortly. The beater, jordan, and machine and other rooms are mostly three storeys high, and the mill is thoroughly modern in design and equipment.

The Union Bag and Paper Co., Montreal, has started laying the foundations for a pulp and paper mill at Cap de la Madeleine, Que., on the St. Lawrence River.

* * *

The Gordon Pulp & Paper Co., (or Dryden Timber & Power Co., to give its new name) are rushing forward preparations for resuming operations at the mill, a satisfactory basis being reported as reached.

* * *

An absurd rumor has been published to the effect that the Davy pulp mill was contemplating removing from Thorold. Mr. Davy, the proprietor, authorizes us to make an emphatic denial.

* * *

Elwood Wilson, forestry expert for the Laurentide Pulp and Paper Company, has left on a five months' trip to Europe to study forestry questions first hand. He will visit Norway, Sweden, Germany, Austria, Poland, France and other countries, where he will study and investigate methods of forestry preservation, reforesting methods, etc.

* * *

The John Martin Paper Co., Limited, Winnipeg, has been granted a Manitoba charter. Capital stock, \$100,000. It will make and deal in paper, boxboard, paper boxes, bags, envelopes, calendars, labels and paper products, etc. John Martin, Richard Hillier and Sydney D. Flanders, all of Winnipeg.

* * *

The Dupuis Pulp Lumber Co., Limited, St. Herménegilde, Que., has been incorporated with a capital of \$100,000 to take over the business of Arthur Dupuis at that place, engage in a general lumber business, and to acquire and dispose of pulp concessions and lumber licenses. Arthur Dupuis, of St. Herménegilde; G. Langlois and A. Handfield, of Montreal.

Ottawa pulp and paper men are interested in the scheme now being taken up by the Board of Trade there to divert water now flowing into Hudson's Bay into the Ottawa River by the erection of two dams. It is estimated by Peter Whelen, president of the Board of Trade, that the increase of water would be no less than 360,000 cubic feet per minute. It is believed that the carrying out of such a project would do much to equalize the amount of water-power available.

* * *

Active preparations are now being made in cutting logs, etc., with a view to the speedy operation of the Albert Reed Company's pulp mills at Bishop's Falls, Nfld., 25,000 cords of wood being required for a year's running. Half of the machinery is expected to be installed by Christmas and the balance by next spring, after which the installation of paper machinery would be proceeded with as rapidly as possible. A. E. Harris is managing director, and H. F. Lincoln superintendent of construction.

* * *

An important new pulp and paper company, with an authorized capital of \$5,000,000, has just been granted a Dominion charter. It will be known as the Wayagamack Pulp and Paper Co. Among those interested are J. N. Green-shields and Rodolphe Forget, of Montreal, and C. R. Whitehead, of Three Rivers. A large amount of bonds have already been underwritten. It is the company's intention to build at Three Rivers, Que., a mill with a capacity of 100 tons per day. It is taking over some valuable timber limits on the St. Maurice River and tributaries.



—The 1909 report of the Dominion Superintendent of Forestry shows that the work of free tree distribution to homesteaders on the Western prairies has grown steadily. In the spring of 1909 2,570,000 trees were distributed among 2,010 applicants; last spring the number of trees remained about the same, but the applicants had increased in number to 3,173, which shows what

a growth of public interest has taken place.

* * *

The auction sale of the Alex. Gibson Railway and Manufacturing Co.'s properties, which will take place as the result of an equity suit for foreclosure of mortgages amounting to about \$500,000 on sawmills, timber and pulp-wood limits, etc., is fixed by the Supreme Court of Canada to be held on February 22nd next.

* * *

During the month of October two newspapers in the Dominion went into liquidation. The Calgary "Daily News" shows excess liabilities over assets of about \$66,000. Among the losers are the well-known Dan. McGillicuddy, the editor; Hon. Frank Oliver, Minister of the Interior, and several Alberta politicians. The other paper in difficulties is the Galt "Reporter," which has been offered for sale by the liquidators, the London and Western Trusts Co., London, Ont.

* * *

The Flanagan & Hart Lumber Co., capitalization \$100,000, has been incorporated under British Columbia laws, with power to carry on business as timber merchants, pulp and paper mill proprietors, etc.

* * *

The Poulin Lumber Co., recently incorporated under British Columbia laws, is authorized to manufacture pulp. Capital \$100,000.



—F. Reddaway & Co., manufacturers of belting, etc., Montreal, have placed a stock of standard widths in single and double "Camel Hair" belting in Toronto. They have appointed Messrs. Archer & Gerow, 174 King Street East, selling agents for the district west of Belleville and east of Sault Ste. Marie. The firm expect that their friends will appreciate the convenience of this new departure, and will help them make a success of it by placing larger orders than ever before. Prices will remain the same, but there will be a saving in freight rates.

The Pulp ^{AND} Paper Magazine of Canada

Vol. 8.—No. 12.

TORONTO, DEC., 1910

(Canada \$1 a Year
(Single Copy 10c

Pulp and Paper Magazine

A monthly magazine devoted to the interests of Canadian pulp and paper manufacturers and the paper trade.

Subscriptions: Canada and British Empire, \$1.00 per year. United States and Foreign, on account of postage \$1.50 per year.

The Pulp and Paper Magazine is published on the second Tuesday of each month. Changes of advertisements should be in the publishers' hands not later than the 1st of the month, and, where proofs are required four days earlier. Cuts should be sent by mail, not by express.

BIGGAR-WILSON, Ltd.

PUBLISHERS.

**Offices, Confederation Life Building,
Toronto, Canada.**

RECIPROCITY DISCUSSION.

Discussion of the subject of a reciprocity treaty between Canada and the United States continues. Canadian boards of trade in city after city have in the past few weeks passed resolutions against such a treaty, and many local Liberal Associations, as well as Conservative organizations, have also pronounced against it. Public men of weight and influence in and out of Parliament, and with little regard to party leanings, have opposed. The reasons given are various, but among them are the following considerations. Canada, since the reciprocity treaty of 1854-66 was abrogated by the United States, has spent hundreds of mil-

lions in connecting its inland regions with the seaboard of the Atlantic and Pacific in order to extend its trade with other countries, and after years of patient effort this policy has succeeded so well that the foreign trade of Canada is to-day greater per head of population than that of the United States and most other countries; that the country is now prosperous and should let well enough alone; that a special trade treaty with the United States would compromise the trade relations of Canada with Great Britain and the British colonies; that the tariff of the United States against the admission of farm products is now nearly twice as high as that of Canada, and in manufactured goods from two to four times as high as that of Canada in like classes of goods, and it will be time to discuss reciprocity of trade when there is some approach made towards equality of tariff conditions; that the interests in the United States, which are most anxious for such a treaty, are those which require the raw materials of Canada in order to maintain or extend their trade in manufactures made from such raw materials, these industries being largely such as compete with Canadian industries in the foreign market; that the outcome of tariff revision in the United States should first be known in this country before the advantages or disadvantages of such a proposition could be considered; and finally, any readjustment of the tariff of the two countries should be made by the independent legislation of each country,

rather than by a treaty which would hamper the freedom of this country in its fiscal legislation in the future.

The pulp and paper industries and the milling and cereal industries of Canada afford illustrations of the tendency of such a treaty to cripple this country in its future legislation. The Dominion Government cannot bind the provinces in their administration of provincial Crown lands, but if sufficient pulpwood could be had from private lands in Canada for the purpose of maintaining United States pulp mills, and if a treaty for, say, twenty years, were negotiated, guaranteeing free wood to United States mills, then under the special sanction of such treaty hundreds of millions of capital would be invested in the United States, dependent on that arrangement. Would it be wise for a Canadian Government to establish a pipe-line of this sort which could not be severed at the expiration of the treaty without wholesale injury to a great established industry? The same thing would apply to the milling and cereal industries which might be established in the United States for the export of flour and cereals and which could not continue such trade if they were deprived of this source of their raw material. And would they not claim as a right the continuance of that which was assured to them during the life of the treaty? When the folly of foot-binding has been realized by the Chinese we should not be oblivious to the effects of the same process in our treaty making.

So far as the pulp and paper industries are concerned, we must remember that the effects of a reciprocity do not stop with these trades, but legislation in these and the woodworking industries becomes a forestry problem, and of all our natural resources there is none so vital as the forest. The country might ignore the question of

developing a pulp and paper trade, but the devastation of the forests would be national suicide.

After all this is admitted, we must always strive to treat our neighbors with good-will. Their people are better than their government. Their merchants and manufacturers are almost invariably genial and honorable men, and true to their engagements, while keen after business. Moreover, as a people, we believe they desire to be friendly and at peace with Canada. We and they must remember that while the moral relation should be maintained on the highest plane of good will, the economic problems of each should be dealt with on business principles, each country conducting the affairs of its own national household on a rational and independent basis. It is the only foundation for the lasting friendship which should exist between us.



CANADA'S PROGRESS IN PULP AND PAPER.

In another part of this issue will be found what may be taken as a statistical history of the pulp and paper trade of Canada. Compared with recent records of the same industries in the United States, the showing is not bad. In every branch—pulp, paper and printed matter and stationery—there has been a very marked increase in the exports of Canada in the last ten years. Even in books and other literature the exports of Canada have made a noteworthy advance, notwithstanding the unfair handicap under which this branch has labored from the copyright law, which up till now enabled a British or United States author or publisher to do in this market what has been refused in the United States in publishing copyright books, as explained elsewhere.

Looking at the United States' foreign trade in paper, it is seen that the exports of that country have fallen off in the aggregate by over half a million dollars in the past five years. Writing papers and the higher grades of papers are the only two divisions that have shown a small increase. In news print papers the United States exports have fallen by a third, while Canadian exports of the latter class have developed enormously. On the other hand, the United States imports in pulp, paper and printed matter have nearly doubled in this short space of time. It must not be inferred from this that the United States paper industry is decaying. The output of the mills there has expanded in that time, and increased imports have in some lines been due to the great expansion of home trade. The logic of these figures, however, is that Canada is at last beginning to reap the results of its great natural advantages in the possession of cheap and relatively abundant supplies of raw material, good and efficient labor, and, not least, the numerous large water powers for the cheap production of pulp. For these reasons there is no doubt that the news print trade of this continent is falling into the hands of Canada. This would be the case—even if the United States had unlimited supplies of pulpwood—because the water powers of the eastern and middle western states are fast becoming too valuable in other fields of manufacturing to make the grinding of pulp a profitable business.

The above considerations make it almost certain that the United States Government will adjust itself to the new situation by removing the duty from ground wood pulp and reducing it on news print paper. This is the more likely to be done because when the differences in the cost of wood and of the freight upon the wood are balanced up against the cost of Canadian pulp, the

result to the United States manufacturer of news print is about the same. If the duty is retained on pulp, the cost of news print to the consumer and the cost of pulp to the news print mill alike will be increased of necessity as time goes on, and as there is more at stake in the problem of dear paper than in that of dear pulp in the United States, we can safely anticipate the era of free pulp at least.

If the clamors of the United States newspapers decide the policy of the Government, the duty on news print also will be removed. But is this not an appeal for class privileges? If the newspaper publishers demand that the raw materials of their own trade shall be free, how can they deny the same right to those engaged in other industries? If they are consistent in such a claim this means the advocacy of straight free trade. They will hardly be prepared to face such an industrial revolution all along the line, and gradual tariff reduction is the more likely to be adopted. A reduction in the news print duty, and not free trade in that product, is the more probable.

So far as the effect on Canadian forests is concerned, it is immaterial whether the United States Government makes pulp free or dutiable. The aggregate of wood and pulp going out of the country will be the same; and free pulp will only transfer the more rapidly to Canada the pulp making industry of Canada. So far as the exports to neutral foreign markets may be concerned, the same reasons which transfer the pulp industry to Canada will tend to build up the news print branch of paper making in Canada, where the conditions for both manufacturing and export will be more favorable.

From the industrial standpoint, however, it must be remembered that logs, pulp and paper are a unit and not three independent elements, and if this business is to attain

an all-round development it cannot stop at pulp. It is only when we reach the last stage of paper that the industry comes into direct contact with the hundreds of other industries for which this material is more and more a necessity in our civilization. For this Government to encourage the export of pulp instead of paper, would be like scalping a man to make his hair grow. We should, however, not deal harshly with our neighbors, however harsh their policy has been towards us in the past. And we must admit that there is more danger to Canadian forests from fires and from blind forest administration and the unpunished carelessness of railway corporations, than from the drain, serious though that drain is, by the unrestricted export of wood and pulp.



CANADIAN COPYRIGHT.

An important point has been gained for Canadian autonomy by the passage in Great Britain of the Buxton Act, which gives the colonies the right to legislate for themselves in copyright matters. The long delay in obtaining this concession, so far, at least, as Canada is concerned, is probably due to the untimely death of Sir John Thompson, who had energetically taken up the matter. The present British legislation repeals the Imperial Act of 1842 and adheres to the Berlin Convention of two years ago, with a proviso that Canada and each other part of the Empire may adhere or not, just as it chooses.

Heretofore a British copyright obtained by a United States author, or under which American publishers acquired United States territory, was also in force in Canada, the Canadian territory being "thrown in," so to speak. If a British or Canadian author or publisher desired to secure copyright in the United States, however, the book had

to be set up with American type, printed on American paper and American presses, and be bound in the United States. Conversely, if a United States author or publisher wanted to secure copyright throughout the British Empire, all he had to do was to send copies of the book to London and register, and he thus secured copyright throughout the Empire.

Mr. W. P. Gundy, manager for W. J. Gage & Company, Toronto, who has been persistent for years in calling attention to the need of this country for proper copyright protection, brought up the matter again at the recent meeting of the pulp and paper trades in Montreal, and as Hon. Sydney Fisher has announced the Dominion Government's intention of drawing up suitable legislation as speedily as possible, the time was most opportune for representations to be made for the furtherance of the several Canadian interests involved. A committee therefore was appointed, consisting of Senator Rolland, J. R. Booth, W. H. Rowley, W. P. Gundy, and Carl Riordon, to join the deputation to Ottawa of the Press Association and the Printers' and Bookbinders' Associations. The result of their representations was that a clause is to be added to the Act, requiring the printing and publishing in Canada of Canadian copyright books. This will mean millions of dollars annually to the paper industry, printing, bookbinding and allied trades of this country.



MR. A. C. HASTINGS AND THE PUBLISHERS.

In our last issue appeared a letter from President Hastings of the American Paper & Pulp Association to the New York Journal of Commerce, together with a resumé of that paper's reply. Mr. Hastings now returns to the attack. He points out, in

connection with our contemporary's strictures on the paper makers refusing to quote prices to consumers for the months of July and August next, that it would be folly for them to do so, in view of the fact that they cannot possibly be in a position yet to know what their cost of production will be at that time. The paper industry depends largely on such natural and varying conditions as water powers, and in view of the serious droughts that have prevailed during the past two or three years, and which may prevail again, it would not be good business policy to make prices for the finished product, the cost of which depends so closely upon the nature of those undetermined conditions.

Mr. Hastings goes a step further, and, in reply to the question, why do not the paper manufacturers quote prices ahead, asks the counter query, why do not the publishers, in periods of slack demand, lay in a stock of paper, so that their supply may be assured at all times? Surely there is and can be no law to compel a manufacturer to accumulate material in order to keep down the price for the consumer. The publishers seem to think they should be entitled to buy, say, a 32 lb. paper as cheaply as a 30 lb. paper; which is equivalent to saying the newspapers ought to sell a column of advertising space as cheaply to one man as half a column to another.

As to the charge that the paper makers limit contracts to one-year periods, it is a question whether even that is not too long for the good of the industry. Materials for manufacture cannot be obtained on long-term contracts.



A novel system for helping in the protection of forests against fire is being tried on the limits of the River Ouelle Pulp & Lumber Company along the line of the National Transcontinental Railway in Kamouraska

County, Quebec. Fifty-two miles of telephone line have been strung forming a circular chain of communication through the heart of the limits. Telephones have been installed for the use of the fire rangers at five different points along this line, and portable telephones, to be adjusted to the line at any point, are to be supplied to the rangers and carried with them in the woods, if suitable instruments can be procured, and if not, ordinary wall telephones are to be installed every two miles along the National Transcontinental Railway, where it passes through the limits. Hitherto, when a fire started in the forest, the ranger finding it has had to hurry to headquarters or the nearest parish to summon help, instead of being able to work at extinguishing it while assistance is coming, and fully a day or more has thus often been lost while the fire continued to spread.

Now a ranger can notify headquarters in a minute, or even less, and have the other rangers called out to his assistance, a very few hours at most sufficing to bring them to the scene, accompanied by a cook and camp equipment, if the fire is a serious one.

The Ontario Department of Lands, Forests and Mines is about to undertake an important experiment with a view of safeguarding the forests against fire. One of the chief dangers at present is the brush and debris left on limits after lumbering operations are over. There has been no regulation compelling lumbermen to burn this refuse, though they recognized the additional risk of fire incurred by allowing its accumulation. They have, however, always contended that the expense of burning or removing it was too great to allow of that course being pursued. During the coming winter the Department will conduct, in co-operation with lumber companies, a practical experiment in the Rainy River District. It is believed that the tops, limits and brush

may safely be burned in winter when the trees are being cut into logs, and in order to arrive at a basis of cost, the Government will pay one-half of the expense, the rest to be borne by the companies concerned. The result will be awaited with interest.



At a time when timber and pulpwood lands and limits in Canada are interesting prospective buyers from abroad, it may be well to sound a note of caution in this regard. There are many propositions open to investors which will probably net them anywhere from ten to twenty per cent. on the outlay for development, but, as in everything else, there are some good and some bad ones being presented. The investors should be very careful, therefore, to employ the best and most reliable parties to explore and report on the assets of limits to be purchased. In the past some limits have been bought by outside capital and plants established on the basis of a much larger timber growth than that which actually existed. The result of such mistakes will surely be felt in the near future and may react with serious consequences on many of the really first-class propositions now before investors.



CANADIAN FORESTRY ASSOCIATION.

Sir Wilfrid Laurier has issued a call for a Dominion Forestry Convention to be held in the City of Quebec on January 18-19.

The convention is to be held under the auspices of the Canadian Forestry Association, of which Earl Grey is the patron, Sir Wilfrid Laurier honorary president, and Hon. W. C. Edwards, Ottawa, president.

The Commission of Conservation, of which Hon. Clifford Sifton is chairman, will hold its annual meeting in the City of Quebec on January 17th, so that the ancient capital

will that week be the Mecca of all interested in the preservation of forests and all that depends upon them, such as navigation, water-powers, agriculture, fish and game, recreation, health and tourist travel. The Commission of Conservation, which has been all year gathering information about all of Canada's natural resources, will, through its experts, indicate the present state of each. The Forestry Convention will discuss and make clear the duty, of the public, the press and the governments to Canada's forests.

Sir Lomer Gouin and the members of his Government are enthusiastically taking up the project, the details of which will come under the direction of Hon. Jules Allard, the Minister of Lands and Forests. Mr. James Lawler, the secretary of the Canadian Forestry Association, whose headquarters are in Ottawa, and to whom enquiries about the programme, etc., may be addressed, will visit Quebec frequently between now and the date of the convention to confer with Mr. Allard and the committee of the association there to see that no detail of the work is left undone.

Everything points to the largest and most practical forestry convention ever held in Canada. The Legislature of Quebec will be in session at this time. Railways have granted special rates, and a strong programme is being prepared, the details of which will be announced later, or may be had from the secretary.



A resolution has been passed for the winding up of the Canadian Pacific Sulphite Pulp Company, Limited. It is registered in London, with a nominal capital of £107,000, and was formed for the purpose of taking from the Canadian Finance Syndicate, Limited, of London, the whole of the issued capital stock of the Oriental Power and Pulp Company, Limited, Vancouver, British Columbia. The latter company was the holder of about 84,000 acres of pulp timber land on Princess Royal Island and the adjacent mainland of British Columbia, together with a water power and about 500 acres of freehold land. The liquidator appointed is Mr. Limebeer, chartered accountant, of 65 London Wall, London, E. C.

STATISTICAL HISTORY OF CANADIAN TRADE IN PULP, PAPER AND MANUFACTURES OF PAPER.

CANADIAN EXPORTS.

	To Great Britain.	To United States.	To All Countries.
1886—			
Books, etc., no papers classified.....	\$ 24,243	\$ 16,001	\$ 86,677
1900—			
Pulpwood	\$ 38,370	\$ 864,077	\$ 902,772
Pulp.....	562,178	1,193,753	1,816,016
Paper and manufactures of.....	2,718	48,052	61,012
Books, etc.	37,128	50,149	138,110
	<hr/>	<hr/>	<hr/>
	\$640,394	\$2,156,631	\$2,917,910
Less pulpwood	38,370	864,077	902,772
	<hr/>	<hr/>	<hr/>
	\$602,024	\$1,292,554	\$2,015,138
1910—			
Pulp, mechanical	\$ 888,898	\$2,577,990	\$3,545,751
Pulp, chemical	42,252	1,597,319	1,658,846
Paper and manufactures of.....	912,524	1,293,435	3,156,096
Books, etc.	82,137	152,672	247,183
Stationery . . . . .	.....	.....	23,380
	<hr/>	<hr/>	<hr/>
	\$1,925,811	\$5,621,416	\$8,631,256

In addition to these exports of manufactured goods, Canada exported in 1910 965,271 cords of pulpwood, valued at \$6,076,628, all going to the United States.

CANADIAN IMPORTS.

	From Great Britain.	From United States.	Total From All Countries.
1886—			
Dutiable Goods—			
Books, etc., and printed matter.....	\$364,649	\$ 732,113	\$1,160,495
Papers	387,430	640,107	1,073,363
	<hr/>	<hr/>	<hr/>
	\$752,079	\$1,372,220	\$2,233,858
Free Goods—			
Books and magazines.....	54,674	66,303	132,626
			<hr/>
			\$2,366,484
1900—			
Dutiable Goods—			
Books, etc.	\$235,810	\$1,073,025	\$1,404,442
Papers	286,540	1,113,583	1,498,471
	<hr/>	<hr/>	<hr/>
	\$522,350	\$2,186,608	\$2,902,913
Free Goods—			
Books.....	132,545	365,707	564,441
			<hr/>
			\$3,467,354

1910—	From Great Britain.	From United States.	Total From All Countries.
Books, etc.	\$ 691,373	\$2,273,459	\$12,725,016
Papers :	1,029,153	3,216,743	4,629,175
	<hr/>	<hr/>	<hr/>
	\$1,720,526	\$5,490,202	\$17,354,191
Free Goods—			
Books, etc.	179,894	482,414	1,005,151
			<hr/>
			\$18,359,342

THE UNITED STATES TRADE IN PULP, PAPER AND PAPER MANUFACTURES.

The following figures show the developments of the past five years in the pulp and paper trades of the United States. The figures are carried down to the end of the fiscal year 1909, the latest date for which complete returns are available.

TOTAL UNITED STATES EXPORTS.

Paper—	1905.	1909.
Writing and envelopes	\$ 975,000	\$1,068,000
Printing papers	3,059,000	2,178,000
Paper hangings	304,000	266,000
Playing cards	225,000	195,000
Other papers	3,674,000	3,953,000
	<hr/>	<hr/>
	\$8,238,000	\$7,660,000
Wood pulp	473,000	448,000
	<hr/>	<hr/>
	\$8,711,000	\$8,108,000

TOTAL UNITED STATES IMPORTS.

Paper—	1905.	1909.
Litho, labels and prints.....	\$1,506,000	\$4,450,000
Printing, book and news (included in "all other paper" previous to 1909).....		903,000
Other papers	4,077,000	6,278,000
	<hr/>	<hr/>
	\$5,583,000	\$11,631,000
Pulp	4,500,000	8,629,000
Books and printed matter.....	4,589,000	5,626,000
	<hr/>	<hr/>
	\$14,672,000	\$25,886,000

UNITED STATES EXPORTS—DOMESTIC PRODUCTS.

Books, Maps, Engravings, Etchings and Other Printed Matter.

1905	\$4,844,000	Of which to Canada	\$2,023,000
1906	5,839,000	" "	2,162,000
1907	5,813,000	" "	2,191,000
1908	6,107,000	" "	2,448,000
1909	6,351,000	" "	2,648,000
Paper Hangings.			
1905	\$304,000	Of which to Canada	\$207,000
1906	311,000	" "	181,000
1907	297,000	" "	167,000

1908	.....	283,000	Of which to Canada	146,000
1909	.....	266,000	“ “	152,000
Playing Cards.				
1905	.....	\$225,000		\$13,000
1906	.....	257,000	“ “	15,000
1907	.....	184,000	“ “	14,000
1908	.....	175,000	“ “	12,000
1909	.....	195,000	“ “	14,000

Printing Papers.

	Lbs.			Lbs.	
1905	..... 108,000,000	\$3,059,000	Of which to Canada	7,457,000	\$350,000
1906	..... 138,000,000	3,666,000	“ “	6,981,000	345,000
1907	..... 120,000,000	3,514,000	“ “	6,784,000	345,000
1908	..... 69,000,000	2,140,000	“ “	5,240,000	246,000
1909	..... 72,000,000	2,178,000	“ “	6,103,802	292,000

Total Export of Printing Paper Distributed, as follows:—

	1905.	1909.
Europe	\$1,472,000	\$763,000
North America	564,000	628,000
South America	408,000	330,000
Asia	105,000	143,000
Oceania	474,000	311,000
Africa	34,000	1,080

Rags and Other Paper Stock.

1905	.....	\$147,000	Of which to Canada	\$29,000
1906	.....	211,000	“ “	46,000
1907	.....	485,000	“ “	83,000
1908	.....	733,000	“ “	79,000
1909	.....	975,000	“ “	75,000

Wood Pulp.

	Lbs.			Lbs.	
1905	..... 23,703,000	\$473,000	Of which to Canada	2,324,000	\$39,000
1906	..... 29,482,000	587,000	“ “	2,483,000	35,000
1907	..... 25,079,000	498,000	“ “	3,003,000	43,000
1908	..... 23,845,000	519,000	“ “	2,429,000	41,000
1909	..... 20,650,000	448,000	“ “	2,522,000	36,000

Distributed as follows:—

	1905.	1909.
Europe	\$386,000	\$332,000
North America	63,000	79,000
South America	2,000	24,000
Asia	9,000	8,000
Oceania	8,000	149
Africa	2,000	3,000

Nearly all exports of these products were classed as “domestic.”

UNITED STATES EXPORTS—DOMESTIC.

Writing Paper and Envelopes.

1905	.....	\$ 975,000	Of which to Canada	\$188,000
1906	.....	975,000	“ “	183,000
1907	.....	1,200,000	“ “	206,000
1908	.....	1,088,000	“ “	225,000
1909	.....	1,068,000	“ “	249,000

Distributed as follows:—

	1905.	1909.
Europe	\$221,000	\$171,000
North America	504,000	640,000
South America	94,000	107,000
Asia	18,000	44,000
Oceania	126,000	96,000
Africa	8,800	8,400

Other Paper Manufactures.

1905	\$3,674,000	Of which to Canada	\$1,246,000
1906	4,324,000	“	“ 1,472,000
1907	4,659,000	“	“ 1,614,000
1908	4,376,000	“	“ 1,673,000
1909	3,953,000	“	“ 1,503,000

Distributed as follows:—

	1905.	1909.
Europe	\$ 983,000	\$1,002,000
North America	1,902,000	2,253,000
South America	207,000	169,000
Asia	206,000	132,000
Oceania	332,000	356,000
Africa	42,000	38,000

UNITED STATES IMPORTS—FREE.

Books, Music, Maps, Engravings, Etchings, and Printed Matter.

1905	\$2,609,000	Of which from Canada	\$53,000
1906	3,000,000	“	“ 45,000
1907	3,379,000	“	“ 73,000
1908	3,071,000	“	“ 69,000
1909	2,996,000	“	“ 93,000

Books, Music, Maps, Engravings, Etchings, and Printed Matter—Dutiable.

1905	\$1,980,000	Of which from Canada	\$54,000
1906	2,599,000	“	“ 62,000
1907	3,072,000	“	“ 69,000
1908	2,965,000	“	“ 73,000
1909	2,630,000	“	“ 73,000

UNITED STATES IMPORTS—DUTIABLE.

	Wood Pulp.	
1905 Lbs.	375,000,000	\$4,500,000
1906	352,000,000	4,584,000
1907	477,000,000	6,348,000
1908	532,000,000	7,313,000
1909	260,279,169 Mech.	\$2,057,877
	268,940,457 Chem. Unbleached	4,478,903
	85,025,346 Bleached	2,092,483
		\$8,629,263

Lbs. 614,244,972

Of above the following were imported from Canada:—

	Wood Pulp.	
1905 Lbs.	292,000,000	\$2,669,000
1906	260,000,000	2,503,000

Magazine of Canada.

289

1907	335,000,000	3,230,000
1908	324,000,000	3,198,223
1909	{ 249,831,901 Mech. \$1,951,680 74,367,341 Unbleached 1,334,821 4,607,983 Bleached 120,162	
		\$3,406,663

Lbs. 328,807,225

Pulpwood.

1907	cords 650,366	\$2,792,751
1908	923,503	4,989,919
1909	727,099	4,333,880

All from Canada except 5 cords, \$25 from Belgium in 1909.

UNITED STATES IMPORTS OF PAPER STOCK (RAGS OTHER THAN WOOLEN)
—FREE.

1905	Lbs. 149,000,000	\$2,184,000
1906	140,000,000	2,118,000
1907	159,000,000	2,335,000
1908	113,000,000	1,715,000
1909	130,000,000	1,562,000

In this importations from Canada increased from \$50,000 in 1905 to \$113,000 in 1909.

Other Paper Stock.

1905	\$1,611,000	Of which from Canada	\$109,000
1906	2,255,000	“	“ 141,000
1907	3,244,000	“	“ 182,000
1908	1,959,000	“	“ 132,000
1909	2,075,000	“	“ 126,000

UNITED STATES IMPORTS OF LITHOGRAPHIC LABELS AND PRINTS—
DUTIABLE.

1905	\$1,506,000	Of which from Canada	\$1,570
1906	2,205,000	“	“ 253
1907	3,968,000	“	“ 5,567
1908	4,911,000	“	“ 7,657
1909	4,450,000	“	“ 4,786

Printing Paper for Books and Newspapers.

(Included in “all other paper mfrs.” previous to 1909).

1909	Lbs. 37,055,028	\$903,705
Of which from Canada.....	33,295,261	631,983
Of which from Germany.....	1,855,000	139,372

All Other Papers Dutiable.

1905	\$4,077,000	Of which from Canada	\$171,899
1906	4,747,000	“	“ 111,936
1907	6,759,000	“	“ 422,301
1908	7,311,000	“	“ 699,099
1909	6,278,000	“	“ { 51,340 631,983

\$683,323

NEWFOUNDLANDERS' MECHANICAL SKILL.

In view of the disparagement which has been heard in certain quarters of everything appertaining to Newfoundland and its inhabitants, it is interesting to read the articles by S. T. Wood, the correspondent of the *Globe*, who has lately been touring this island. In one of these he writes of the remarkable innate mechanical ability of the natives:

"Lord Northcliffe's mansion has a fine aspect, the site being chosen with English reserve rather than American obtrusiveness. The work of construction may afford food for philosophy on the relative dependence of the projecting director and the worker. The design is of the Tudor period, and every part is finished, both within and without, in rich, chaste detail. Plans were brought from England by the supervising architect. When he saw the 'handy' men with their axes, chisels, saws and hammers, who were to give effect to his designs, he was in despair, but when he began to set them to work his despair soon changed to amazement. Not one of them had seen such work before, but they took hold of everything with confidence and did what was required with the accuracy and finish of skilled workmen. A force of eighty men completed the entire work of this three-storey mansion, 74 feet by 35 feet, in ten weeks, and it stands a tribute to the peculiar mechanical genius of the untaught Newfoundlander. These people may in time reach the age of physical culture, manual training and technical education, and their special mechanical ability may pass from them, but that need not be feared in the immediate future.

"When one asks who builds the schooners, he is told the Newfoundlanders build these themselves. The same answer is made when one asks about the excellently finished work on all the houses in the new town of Grand Falls. The supervising architect who was astonished at the way the untrained Newfoundlanders wielded their axes and chisels might have been saved his earlier anxiety by looking over some of the schooners, built with a finish of detail that would do credit to a trained ship carpenter."

BRITISH COLUMBIA FORESTRY REGULATIONS.

The report of the Royal Commission on Forestry, just presented to the British Columbia Government, besides urging the establishment of a department of forests, recommends that as far as possible timber leaseholds should be placed upon renewal upon a parity with licensed timber lands, and that they should be subject to the same forest regulations; that rates of rental and of royalty upon special licenses should at no time be fixed in advance for more than one year; that the present reserve upon unalienated timber land be continued indefinitely, and that when special circumstances necessitate the opening of any portion of this reserve for immediate operations, licenses to cut timber thereon should be put up to public competition upon a stumpage basis; that the record of every cruise and survey in timbered areas be accompanied by a report concerning the suitability of the land for agriculture; that power to compel licensees to cut and remove timber from good land be retained, and that at the time of renewal the same provision be inserted in every timber lease; that the issue of hand loggers' licenses be discontinued; that no divided interest in special timber license be recognized; that a royalty be collected upon all merchantable timber not removed from the Crown lands in the course of logging operations; that operators be required to dispose of the debris; that the protection of forests from fire be undertaken by the Government through the agency of a permanent forest organization upon the lines of the Northwest Mounted Police, and that it be compulsory for all able-bodied citizens to assist in this work when called upon; that the cost of fire protection be shared between the Government and the stumpage-holders; that the Provincial Government should co-operate with the Dominion Railway Commission, that a vigilant patrol of all railway lines and inspection of locomotives should be established, and that all railway construction should be supervised by provincial forestry officials; that special licensees should be instructed to proceed with the survey of their holdings, and that all such surveys should be completed not later than the 31st day of December.

FURNACE FOR THE RECOVERY OF SODA.

Aug. Abadie, of Lalande par Toulouse, France, sends us an article describing a perpetual furnace for the recovery of the soda that has served to cook wood for making Kraft.

The question of the recovery of the soda that has served for the disaggregation of the wood used in the manufacture of paper is of the highest importance, for on the quantity of recovered matter may frequently depend the existence and livelihood of a mill that works with an alkaline process. Years back, several mills using liquors with a base of soda for cooking wood or straw experienced heavy disappointments because they were unacquainted with the practical and economical mode of recovering the excess of alkali that has not been absorbed in cooking the material. This soda was lost in the waste waters that run from the digesters, the draining tanks, presse-pâtes, etc. All these, and other similar considerations, have obliged the manufacturers who make use of soda, or of potash, to install furnaces from which proceeds the recovered produce that is anew used for fresh operations.

The system of furnace that should be used is not a matter of indifference, for between one furnace and another furnace may exist a difference of from 6 to 10% in the quantity of recovered matter. The furnace that I am about to describe is the most recent and the best established of those that have been built in late years.

The general sole is horizontal, and is divided in several compartments, that are all on the same level, so as to facilitate the work for the men. The first compartment serves for preparing the materials that afterwards pass through all the others consecutively without leaving the furnace nor passing through the outward canals during the course of the operation. The advantages of this arrangement will be further on explained. In the general sole there is no fire-bridge, that is to say, no super-elevation of masonry, that would hold back the matter contained in each compartment. The fire-bridges are easily damaged by the intensity of the fire, and in order to rebuild them it

is necessary to stop work. It is for these reasons that I have done away with the fire-bridges. The hearths are not rectangular, they are polygon, this disposition has the advantage of making the brewing easier, whether in the state of paste or in that of blazing blocks. The advantage of the whole system is that the soles are never void of matter, the work of the furnace is perpetual; the matter contained in each compartment passes successively from one to the other, and the temperature of the soles is always equal to that of the matter to be introduced, whereas with the furnaces formerly in use the final sole was always empty at each cooking, and the matter afterwards introduced, if it had not a temperature equal to that of the matter extracted, could easily cause the vault to explode. With the division in compartments such accidents cannot take place, consequently it has been possible to lower the bow of the vault so as to concentrate the heat closer to the matter in course of treatment. I have established under the hearths a new system of ventilation; the pipes formerly used, with their appertaining taps, have been done away with, and replaced by a valve that is very easy to regulate. This valve, by reason of its shape, gives a circulation of fresh air that, spreading in fan shape, facilitates the combustion and accelerates the draught of the vapors circulating in the furnace, directing them into the chimney, without return.

With my perpetual furnace the quantity of carbonate of soda recovered is far greater; for instance, it has increased from 27.07% to 34.33%. This increase is due to the general arrangements above described. Each one of my plans must be specially made for the mill in which it has to be installed, and for this reason I beg those who should desire to build my furnace, or to render like my system those that they already possess, to let me have all necessary information, such as the position of the chimney, its diameter and height.



A news item from St. Francis says that large quantities of pulpwood will be cut there this winter, one man being in the market for 10,000 cords at \$4 per cord.

A UNIQUE FIBRE DRYING SYSTEM.

A well arranged system of drying fibre is shown by an installation in the fibre mill of the Diamond State Fibre Co., at Bridgeport, Pa., from designs by F. W. Dean, mill engineer and architect, of Boston, Mass.

The system consists of six drying rooms, each room being equipped with its individual heating system, fan blowers, motors, distributing and collecting flues. The blowers are located in a monitor roof and are supported on wooden frames bolted to the roof trusses. The steam coils are supported by an inexpensive angle iron frame suspended from the roof beams. On the plan of the layout the six drying rooms are lettered A, B, C, D, E, and F. In each of the first four there are two 90-inch centrifugal blowers side by side, each being driven at 300 revolutions by chain drive from its own individual 5 horsepower General Electric motor. The steam coils for the individual rooms consist of five units, each one being made up of 2,520 linear feet of 1¼ inch wrought iron pipe with return bends 6 inches on centers and three tiers deep. Two adjacent rooms are furnished exhaust steam through a branch pipe. This branch line can be cut off from the main supply pipe by a gate valve, and each room unit in turn is controlled by a valve. This allows a very close regulation of heat, and any section can be cut out for repairs without disturbing any other part of the system. The drip is trapped and discharged into a main leading to the receiver pump. The two other rooms, lettered E and F, although laid out in the same way as those already described, are each equipped with but a single 90-inch blower, which in each case is chain driven as before by a 5 horsepower General Electric motor. These two groups have, respectively, 1,296 and 1,440 linear feet of 1¼-inch pipe.

The heating coils in each room are enclosed in a flue 9 in. x 2 in., made up of 1½ in. x 1½ in. x 3-16 in. angles, covered with asbestos protected metal. The flues lead from the fan outlets to the far end of the drying rooms. The heated air takes a downward sweep at this point to the fibre at the floor level, through which it passes in

going to the exit duct located at the opposite or fan end of the room. The moisture-laden air may be partly returned to the fans and partly led to the outlet ventilator on the roof of the monitor as may be desired. Dampers are provided in these pipes so that any proportion of the same air may be used over and over again with any requisite amount of fresh air. By this arrangement the system can be so regulated that there will be a maximum amount of fibre dried with a minimum amount of heat.

It has been found by experiment that the same air can be used practically all day without becoming saturated, so that it is only necessary to heat it up once a day and thereafter merely keep it at the required temperature. Any deficiency in the amount of exhaust steam necessary for the heating coils is made up by live steam through a reducing valve.



THE GOUIN POLICY AND ITS EFFECT.

Editor Pulp and Paper Magazine:

The question is now frequently asked, How has the Gouin policy affected the pulpwood and the pulp and paper situation in the Province of Quebec? Briefly the answer is that the policy, put in force by the Gouin administration has resulted in a veritable boom to the province, though perhaps not directly in the way that it was expected to act.

Obviously the prime reasons for prohibiting the exportation of pulpwood cut on Crown lands were to oblige American mills, then dependent on Quebec Province for their raw material, to move over into Quebec.

Enough has been said now, and, moreover, the facts are sufficiently plain, that we may readily see that freehold lands in Quebec can in future supply the demand created by the American mills which in the past have been dependent on Quebec Province for their raw material.

It requires no demonstration either to show that owing to the conditions under which American mills are now working, they cannot compete with the paper mills which must spring up at and around the sources of supply, of raw material and cheap power. The product from mills working in the United

States and dependent on Quebec for raw material, figured on basis of cost per ton, costs seven dollars more than it would if manufactured in Quebec by reason of the price of raw material alone.

The Gouin policy, owing to the large amount of criticism and discussion it aroused, has attracted attention to Quebec's forest and water power resources from Great Britain and Europe and capitalists in both United States and Canada. In the past few months enquiries from every direction have been pouring in, with a view to create pulp and paper industries in the province. Several large mills are already being built, while plans are maturing for many others.

These conditions, by virtue of the country's vast resources, were bound to come, but the policy of Premier Gouin has shown that the present administration will do all in its power to facilitate development and has precipitated that which might not have come about for many years.

There is every reason to believe that Quebec will in a short time become a great manufacturing province, but the restlessness of the United States and their desire to secure treaty rights are questions which pulp and paper manufacturers here have reason to evince some nervousness over. Not only manufacturers, but the public in general, breathed sighs of relief when the recent negotiations in Ottawa came to a sudden end without taking another mouthful out of Canada. It seems practically beyond doubt that the United States will admit our pulp and lumber free, so what concession they will want for such a sacrifice (?) on their part is matter for conjecture. It behoves us therefore to keep a vigilant eye on Ottawa, lest our southern neighbors, when they arrive with their persuasive powers, induce our representatives to "go off at half cock" and tie us up with treaties we have no need for and much less desire.

The natural evolution of industrial and trade conditions will soon place Canada in a leading position as a paper making country, but in order that such conditions may not be retarded, treaties had better be left out of the question, for history has taught us that Canada always lost something when she entered into treaty relations with Uncle Sam. Quebecer.

WHOLESALE PRICES IN CANADA.

R. H. Coats, B.A., Associate Editor of the Labor Gazette, is to be complimented on the completeness with which he has carried out his arduous task of compiling a special and detailed report on the cost of commodities in Canada during the last twenty years.

For some time past, and especially since the beginning of the present century, one of the most important features of the general economic situation in Canada has been a rapid and continuous advance in prices and the cost of living. This became very marked with the increasing trade prosperity of 1909, in the closing days of which the high cost of living had become the subject of almost universal discussion, affecting as it did the personal well-being of nearly every one in the community.

Covering as it does the past twenty years, the investigation goes back some distance prior to the time at which the rise began and thus affords a suitable point of view. Its findings are of interest to every class in the community. Employees are enabled to gauge the variations in the purchasing power of wages; employers will find a wealth of material bearing on cost of production; while the degree to which the increase has varied as between the several branches of industry and trade is of first importance to the student of economic and social conditions.

The report runs to about 500 pages in length. Not the least of its results is that it will enable the Dep't of Labor to carry forward on a proper basis a contemporary index number from month to month in future which will perform for prices in Canada the same function that is performed by the well-known Economist index number in the case of Great Britain, or the number of the United States Government in the case of the United States.



The New York and Pennsylvania Company, of Johnsonburg, Pennsylvania, has bought a large quantity of pulpwood from the George Estate, Eganville, Ont. The wood will be laid down at various points in Renfrew County.

QUEBEC LIMIT HOLDERS' ASSOCIATION.

A correspondent of the Pulp and Paper Magazine supplies us with particulars of the meeting of the Province of Quebec Limit Holders' Association, held in Quebec on the 14th ult., under the presidency of Alexander MacLaurin, Esq.

The chairman called the meeting to order and then read the objects for which the meeting was called, as follows:—

“This meeting is called for the purpose of interviewing the Government, to request certain amendments to the new regulations regarding cutting of black spruce and balsam and also regarding the stumpage dues on these woods, and also cedar, as well as obtain a longer term than ten years for the guarantee against increase in stumpage dues, etc., for paper and pulp industries now established and to be established in the province.”

The various items were placed before the meeting and a discussion took place, in which Messrs. Kelly, McMaster, Power, Foy, Champoux, McLean, Anderson, Underwood and Rousseau took part. Finally the following resolutions were adopted and it was decided to proceed to the Parliament building and present same to Sir Lomer Gouin.

It was arranged that John Hall Kelly, M.P.P., should speak in support of the first three resolutions and Mr. McMaster in support of the fourth.

The resolutions were as follows:—

(1) That there be no restrictions on the cutting of balsam as to size; that swamp and black spruce be limited to 7 inches on the stump instead of 8 inches.

(2) That the present stumpage rate on balsam and cedar be reduced to the same rate as formerly in force, namely, 65 cents per thousand feet.

(3) That the rate on spruce logs, eight inches and under at small end, be reduced to 65 cents per thousand feet.

(4) That inasmuch as it is impossible to finance the organization of pulp or paper industries in this province with a shorter term than twenty years:—

“The Government be asked to guarantee that no increase of dues on raw material coming from Crown Lands for pulp or paper

industries in Canada shall be made for twenty years.”

In this connection it may be stated that Mr. Ting, a New York bond broker present at the conference, verified the assertion that a term of 10 years was too short to enable bonds being floated for the erection of pulp and paper industries.

The delegation, consisting of all those present at the meeting, proceeded to the Parliament building, where it was received by Sir Lomer Gouin, accompanied by Messrs. Taschereau, Devlin and Caron.

The various resolutions were read and discussed by Messrs. Kelly, McMaster, MacLaurin, Power, McLean and Champoux.

The Premier read a letter from Wm. Price, in which he pointed out the impossibility of making profit on shingles at present, but gave it as his opinion that it would be unwise to lower the stumpage for the present year. This also included cedar, particularly in view of the immense stocks on hand.

In concluding his reply, the Premier stated that he would refer the three first resolutions to the Government experts for their report, and regarding the fourth resolution, he would discuss it with his colleagues and try to meet the wishes of the delegation.

The meeting then adjourned.

SPANISH RIVER PULP & PAPER COMPANY.

The Spanish River Pulp & Paper Company, Espanola, Ontario, has been reorganized under the management of the Dominion Bond Company, of Toronto and Montreal. W. J. Sheppard, of Waubaushene, will still be president of the company, but there will be several new members on the Board. Arrangements are being made for the erection next spring of new paper and sulphate mills, for which the engineers and architects will be Jos. H. Wallace & Co., New York. An offer of \$1,300,000 bonds will be made in London. Manager Millington and other representatives of the Co are now in Europe looking over several of the best sulphite mills in the world, with a view to obtaining valuable suggestions. The company hopes to be in a position to let contracts for machinery by the middle of the coming month.

MEETING OF PULP AND PAPER MANUFACTURERS.

A meeting of pulp and paper manufacturers was held in Montreal on Friday, the 18th November, in the Board of Trade Building, Montreal, the Board of Trade having kindly placed its council room at the services of the meeting. W. H. Rowley, of the E. B. Eddy Company, was called to the chair, and E. B. Biggar acted as Secretary. The meeting was a very representative one, as about four-fifths of the paper manufacturers of Canada were represented, either by letter or opinions transmitted over the phone or by personal attendance. A large majority of the pulp manufacturers was also represented.

The secretary submitted a summary of statistics, the details of which will be found in another part of this issue, showing the recent developments of the pulp and paper industries of Canada and the United States. These statistics showed the growing importance of the pulp and paper industries of Canada and the noteworthy progress of the Dominion as an exporter of pulp, paper and printed matter. He connected the development of the pulp and paper industry with the other large group of industries, such as structural materials, furniture and miscellaneous wood products founded on the forest and its first semi-crude material—logs. He showed that both paper and the finished products in the wood working and structural manufactures form, together with pulp and lumber, one industrial unit, and these three could not be separated if any true developments were to be attained in a country, hence the danger of Canada's consent to any reciprocity treaty or any tariff legislation which would separate the elements of these industries short of the finished products. For instance, if a tariff were so arranged that the paper industry of the United States were given a right under the sanction of a treaty to an unrestricted supply of pulp from Canada, millions of capital would be invested in the United States, based on the security of this treaty, and such a treaty could not be terminated without raising grave questions of claims or else subjecting this country to such pressure

for a continuance of the treaty as would compromise its fiscal independence.

Many letters were read from manufacturers of both pulp and paper, all of them being opposed in greater or less degree to any reciprocity treaty. A discussion then followed in which a majority of those taking part expressed themselves against a reciprocity treaty on various grounds, such as the excessive drain entailed upon Canadian forests by the unlimited export of forest products, the entangling effect of such a treaty on Canada's freedom of action in regard to British and foreign trade, and the inequality of tariff conditions with the United States as they now exist.

After full discussion at the morning session the meeting adjourned till the afternoon for the consideration of resolutions. A series of resolutions was unanimously adopted setting forth the growing need of forest conservation in Canada on grounds similar to those taken by the Canadian Forestry Association, and expressing the hope that in any readjustment of tariff relations both the protection of our forest assets and the development of our home industries should be the chief considerations. It was decided not to publish these resolutions at present, but that they should be left in the hands of a Committee of Observation to present to the Government and public when it became apparent that tariff changes or other legislation affecting these interests would be brought forward. This committee consisted of the following: Carl Riordon, of Riordon Paper Mills (chairman); Alex. MacLaurin, of the Union Bag and Paper Company; W. H. Rowley, of the E. B. Eddy Company; Senator Rolland, of the Rolland Paper Company; John R. Booth, Ottawa; Laurentide Paper Company; John R. Barber, of Barber Bros.; F. A. Ritchie, of Ritchie & Ramsay; D. J. Munn, of Alex. McArthur & Company; David F. Robertson, of Northumberland Paper & Electric Company; J. R. Walker, of Sault au Recllet Paper Company; and W. T. Miller, of Miller Bros. Company.

W. P. Gundy, of the Kinleith Paper Mill, introduced another subject of practical interest to the paper industry—the new Copyright Act now pending in the Canadian House of Commons. He explained that under the Buxton Act recently passed in

the Imperial Parliament, Canada now had complete independence in copyright legislation. Heretofore a British author's copyright automatically covered Canada, while a United States author got full advantage of the Canadian market by simply obtaining a British copyright. Yet the United States laws enforced the printing and publishing of a copyright book in the United States, while the British did not make the same conditions either as to the British or Canadian market. In this jughandled arrangement all the printing and publishing had to be done in the United States for copyright books sold in Canada. The new Canadian Act was to secure equal conditions and fair play, and Mr. Gundy suggested that a committee go to Ottawa the next day to join the deputation of the Press Association and the Printers' and Bookbinders' Associations in securing Canadian rights. On motion of Carl Riordon, seconded by F. A. Ritchie, a committee consisting of Senator Rolland, John R. Booth, W. H. Rowley, and the mover, was appointed to go to Ottawa the next day with Mr. Gundy on the question, and members of the Committee have since reported that a clause requiring the printing and publishing in Canada of Canadian copyright books will be inserted in the Act.

Mr. Gundy was congratulated on bringing up this question, and one of the speakers said this would mean that over a million dollars worth of paper, bookbinding materials and labor would be expended in Canada in the next year, and increasing quantities in subsequent years, which had heretofore been diverted to the United States under this one-sided arrangement. If no other object than this had been attained, the meeting was considered a timely and important one.

A vote of thanks was passed to the executive of the Montreal Board of Trade for their courtesy in placing the council room at the service of the meeting.



St. John, New Brunswick, City Council has rejected the recommendation of the Water and Sewerage Committee report to lease the Mispic pulp mill to Stetson, Cutler & Company at \$2,500 per year, with option to purchase for \$30,000. The lease in itself was favored, but the Council was practically unanimous in opposing the sale.

LOSS AND CHANGE OF DYE ON THE MACHINE.

Loss of color on the wire when dyed pulp is being treated is invariably due to the presence of free acid, whether its presence arises from insufficiently washed sulphite pulp, or from the use of an excess of sulphate of alumina. Overheating of the drying cylinders merely assists the action of the acid. Now overheating, or, to speak strictly, sharp heating, cannot be avoided in these days of hurry and rush—the more reason for seeing that the web reaches the drying cylinders free from anything which may act on the paper under the influence of heat.

A proper choice of the dye for the pulp is of course of importance. Sulphite cellulose papers, smooth on one side, cannot be got of an orange yellow color by using paper yellow or metanil yellow to the pulp. The usual result is a rusty brown. This color changes to the proper warm orange yellow tint when the paper is wetted, it is true, but this circumstance is obviously of no assistance to the paper maker. If, however, a combination of orange R and auromine O is used to dye the pulp, the difficulties disappear as if by magic, and the paper can be dried on cylinders heated by steam at three atmospheres pressure without its color being affected. Eosine is extremely sensitive to acid and heat, and it is a waste of money to buy it for pulp dyeing unless its use is required by the customer on account of the special warmth of its shade. In this case two or three pounds of borax should be added to every 100 lbs. of the dried pulp. The borax acts as a filling, and neutralizes the free acid in the pulp, if any such is present. At the same time it increases the warmth of the color, and makes the eosine better able to stand the heat of the drying cylinders. Rhodamine B and orange R form as good a combination as that between the latter dye and auramine O just mentioned. It gives warm pink shades at a small cost, which stand the highest drying heat perfectly. The rhodamine and orange mixture has also the enormous advantage that very little of it is wasted in the backwater, even when dyed in dark shades. Thus expense of dye and in treating backwater are both saved. Fuchsine is as useless from the pulp dyer's point of view as eosine, for although it

stands acid better, it gives a lilac instead of a pink on drying, unless, again, its use is prescribed. The secret, then, is to use not borax, but soda crystals, putting about 3 lbs. to 100 lbs. of dyed pulp. The resistance to drying is thereby greatly increased; but neither with eosine nor with fuchsine can such good results be got as with orange R mixed either with rhodamine B or auramine O.



SWEDISH PULP INDUSTRY.

The remarkable growth in the Swedish wood pulp industry is shown in an official report recently published. This industry has, since 1871, increased the number of its workers twenty-fold, while the power used has been augmented fifty-fold. In production the gain has been 225-fold, the quantity made in 1871 having practically consisted only of ground wood. The manufacture of cellstuff contributed largely to the subsequent development.

In paper making the number of male workmen has risen six-fold and the power thirty-fold, the production having increased forty-fold and the export seventy-five-fold.

Electricity was first introduced in these two industries in 1896. In 1907 the proportion of electric power to the total was in the wood industry 20 per cent., and in that of paper 56 per cent.

While the figures of 1908 and 1909 for wood pulp are apparently incomplete, they seem to indicate some retrogression on those of 1907.

Suggestions made in the report for the renewed development in these industries include the following points:

1. The establishment of a course of instruction for the training of good foremen and machine tenders.

2. The establishment of a higher course for factory engineers after they have had several years' practice in paper making.

3. Arrangements for scientific solution of technical problems especially affecting the Swedish paper industry.

4. Paper mills which cannot make distinct specialties should unite and make such articles in common.

5. Makers of special kinds of paper should combine for exchanging information about prices and economic conditions.

6. Paper factories should promote the creation of an up-to-date paper converting industry, and should support same.

7. The mills ought to send out a technically and commercially experienced man to investigate the markets into which Swedish paper is as yet but little imported, but where there is a prospect of a permanent outlet.



MANUFACTURE OF COPYING AND PRINTING PAPERS, &c.

(Concluded from Last Month).

Now, while these papers may take press copies more or less clear and perfect, according to the preparation they have undergone, and also to the means adopted for copying, yet it is well known that the dampness they possess causes the ink to spread on the paper, and there will come a time when it will not be possible to read these copies. On the other hand, the constant moisture of the paper makes it less durable, and offers great objection to the handling of the sheets or leaves either when turning them over to find a given copy, or when choosing the sheets to take them out and keep them in the piles with other documents, because the paper so prepared does not prove resistant enough and becomes injured very easily.

It has been found in practice that the paper should have as little moisture as possible to take the ink well, and its touch should be the same as dry paper. These results may be obtained by adding the solution of glycerine in so small a quantity that the paper cannot take press copies in the ordinary copying presses, but will require a very heavy pressure to take neat copies thereon.

In order to fix the ink the glycerine bath or the solution of an hygroscopic

s. It is prepared with a solution of gallic acid, which renders the paper able to fix the ink when taking the copy, and therefore the ink or color does not spread at all, but the copies will remain neat and inalterable whatever may be the time elapsed.

The percentage of gallic acid added to the solution depends on the effect to be produced, a too heavy percentage of gallic acid would soak into the original writing and so fix the ink therein that no more copies would be taken thereof.

In order to give the paper a dry touch and the necessary strength to be easily manifolded, and to prove as durable as the ordinary copying paper (which needs to be previously moistened for copying), to the bath above referred to is added a quantity of saponified wax and honey, by "saponified wax" we mean the product obtained by adding wax in the saponifying process or the product obtained by mixing soap and wax in equal parts and heating them together in a suitable receptacle. Good results are obtained by using 2 per cent. saponified wax and 15 per cent. honey added to the bath.

The class of paper which lends itself best to that use is wood pulp paper. The time of passage of the paper through the bath should not exceed the time just necessary for the absorption of the liquid when it is dried and then calendered, the paper thus obtained is bright, strong, and durable.

Instead of the wax and honey, other materials may be added which impart similar properties to the paper; ceresin tallow may be used instead of wax, and in place of honey we may employ sugar, molasses, glucose, &c.

The moistening operation or passage of the paper in the bath is carried out with the paper in sheets or in endless bands, and also by the same or similar means or machines that are usually employed in paper manufacture or in similar industries.

It will be seen that the glycerine or hygroscopic salt serves to hold enough moisture in the paper to effect the copying process, that the saponified wax and

honey serve to give the paper a dry touch and to prevent it tearing when handled, and that gallic acid readily combines with the ink of the paper to be copied, serving to soften the same, to make it more acid and to fix it and prevent it from spreading.



A STARTLING STATEMENT.

It has been said by those who have investigated the matter carefully, that although at the age of 45 fully 80 per cent. of men are established in whatever pursuit they follow and are in receipt of incomes in excess of their expenditure, at the age of 60 it has been found that 95 per cent. are dependent upon their daily earnings or upon their children for support. Many, no doubt, read the despatch from Detroit which recently appeared in the Canadian papers, and which described the condition of a man who but a little more than forty years ago was a "financial power" in that city, who had a "palatial home" on one of the most fashionable thoroughfares, entertained lavishly, and to whom every person, high and low, was prepared to pay homage. But the fates were against him. He suffered serious financial losses, and when he began to go down hill he found it was properly greased for the occasion. His friends deserted him like rats from a sinking ship, and now at 80 years of age, after his day's labor, he wends his way to the city with the bent, broken-down old men who have influence enough to have their names on the city's pay roll.

The moral is, that out of your abundance something should be laid aside for declining years, and invested where thieves cannot reach it, and where one cannot be deprived of it in any possible way. This means is afforded you under the Canadian Government Annuities Act, which the Parliament of Canada passed in the session 1908, and which received the unanimous support of both sides of the House.

You may get all information by applying at the Post Office, or by addressing the Superintendent of Annuities, Ottawa.

GLEN FALLS MACHINE WORKS.

The Glen Falls Machine Works, Glen Falls, N.Y., are busy with orders covering machinery which they manufacture. They have just shipped a Moore rotary screen to Crown-Columbia Pulp & Paper Co., Oregon City, Ore.; one to Norwood Paper Co., Norwood, N.Y.; two to the International Paper Co., Fort Edward, N.Y.; two to Finch, Pruyn & Co., Glen Falls, N.Y.; and two to Oulatchouan Falls (Que.) Pulp Co. These orders are the result of improvements made in the screen, making it the most durable and giving the largest capacity of any screen on the market. These screens will average from 25 to 35 tons in twenty-four hours, depending upon the size of the perforation in the

plates. The construction of the screen is steel and iron, except the plates, which are copper. This company also manufacture the Tromblee & Paull rotary sulphur burner. Two standard burners have just been shipped to the Powell River Paper Co., Ltd., and a large burner to the Burgess Sulphite Fibre Co., Berlin, N.H., having a capacity of about sixty tons in twenty-four hours. Orders have been received for standard wood pulp grinders and standard wet machines from the Gould Paper Co., Lyons Falls, N. Y.; Spaulding Bros., Newport, N.Y.; Finch, Pruyn & Co., Glen Falls, N.Y., and West Virginia Pulp Products Co., Parsons, W. Va. During the past summer a new foundry was added to the plant and the equipment made modern in every particular.



COLONIAL WOOD PRODUCTS COMPANY.

We show herewith two illustrations of the plant of the Colonial Wood Products Company at Thorold, Ontario, one of the most promising of the newer concerns starting in

There are two Waterous grinders, and four wet machines, the daily capacity being 13 tons of pulp (dry weight) per day. Some of this is consumed in Canada, but it mostly



Interior view Colonial Wood Products Co., Thorold.

this industry, actual pulp making having only commenced last February. The original mill measures about 45 ft. by 105 ft.

goes to the United States. The machinery is driven by one line of shafting. Each grinder has a 450 horsepower motor directly

connected, power being obtained through transformers from the Ontario Power Company, Niagara Falls. The power house is made of concrete and is 20 by 54 ft. A new building, also of concrete, is under con-

struction. An additional room is now being put up for wood roasting purposes. The mill has its own Grand Trunk Railway siding. Ever since it started it has been quite busy and has found a good market for its product.



Colonial Wood Products Co., outside view.

struction for a boiler house. The structures are so arranged as to allow of additional grinding capacity in the future. In fact, we understand that the output will be increased by about 25 per cent. in the spring.



TECHNICAL KNOWLEDGE IN PULP AND PAPER TRADE.

Editor Pulp and Paper Magazine:

Canada last year exported between \$8,000,000 and \$9,000,000 worth of paper, pulp and their manufactured products. These products are made very largely by the application of highly complex chemical reactions, and in the case of paper and sulphite pulp especially, by the use of large quantities of chemical materials. The processes through which these materials are put involve some of the most disputed reactions of chemical technology. In Germany and the United Kingdom there are well equipped schools for students of paper making, and

The officers of the company are as follows: H. B. Eshelman, president; W. E. Shafer, vice-president; C. M. Eshelman, secretary; I. Traub, treasurer; Geo. Wark, superintendent of mill.

the manufacturing interests draw their supply of technologists, purchasing agents and managerial staff largely from these sources of supply.

The "City and Guilds" of London holds yearly examinations in various technical subjects; among these are two grades of papers, "Honours" and "Ordinary" on paper manufacture.

The Municipal School of Technology of Manchester has perhaps the best school of paper making in the world, equipped to manufacture paper in every class on a mill scale. The student in this school takes up paper making in a practical way in his third year, his first and second years being occupied with the necessary groundwork of

mathematics, physics and chemistry. It may come as a mild surprise to some paper and pulp manufacturers that a study of mathematics, chemistry and physics is a necessary groundwork for practical paper making, and because this is so we find that buyers of the best classes of goods in the paper trade have to buy them in Europe, where it is considered necessary to pay attention to technical detail in the making of paper. The writer has been for some time past endeavoring to interest Canadian paper manufacturers in the need for such an institution, and believes that provision for such work could be made in the Montreal Technical School if Canadian pulp and paper manufacturers were prepared to give such a school their practical support.

The writer noted in your last number a suggestion of Mr. G. C. Piché, Forestry Engineer to the Quebec Government, with reference to a school of pulp making as a branch of the forestry work in this province. This is a good suggestion, but the school should have a broader basis. The writer expects to bring this matter before the Royal Commission on Technical Education when it is in session in Montreal.

If the paper and pulp makers of Canada support this project heartily, it will not be a difficult proposition and will materially assist Canada to the place she should hold in the world's paper trade.

T. Linsey Crossley.

Montreal, Nov. 11, 1910.



The Powell River Paper & Pulp Company is now building a plant at Powell River, about 75 miles north of Vancouver, and when in operation it will employ at least 4,000 men. About 1,200 hands have been employed in the work all summer, all of them white men. The company has leased several thousands of acres of the most valuable pulp and timber areas in the province, and it is the intention of the promoters, who are mostly United States capitalists, to commence operation by May 1 next. The large sum of \$4,000,000 will be expended on the entire plant, as the management intends to establish both here and abroad a large business. The company is now making application to the British Columbia Government for water storage rights.

NEW INCORPORATIONS.

The following companies connected with the pulp and paper industry have received charters since our last issue:

G. H. Anson & Company, Limited, Montreal. Capital \$50,000. To manufacture and deal in pulp and lumber. E. Langue-doc, C. G. Greenshields, Montreal.

Canadian Century Publishing Company, Montreal. Capital \$250,000.

Sierra Madre Paper Company, Limited, Toronto. Capital \$5,000,000. To underwrite or purchase shares in any company, and other wide powers. J. S. Lovell, accountant, and Wm. Bain, bookkeeper, Toronto.

Barber-Ellis Company, Toronto, manufacturing stationers, etc. Licensed to carry on business in Ontario.

The National Bag & Paper Company, Limited, changed in name to Continental Bag & Paper Company, Limited, and licensed to do business in Ontario.

Dryden Timber & Power Company, Dryden, Ontario. Capital \$3,000,000. To build and operate pulp and paper mills. E. F. Singer, student; F. G. Waters and H. Burch, accountants, Toronto.

Colonial Lumber & Paper Mills, Limited, Vancouver. Capital \$2,000,000. To manufacture and deal in paper and pulp of all kinds.

Canadian Timber Company, Limited, Vancouver. Capital \$1,000,000. To manufacture pulp and lumber.

Security Lumber Company, Winnipeg. Capital \$500,000. To operate saw and pulp mills. J. P. Jansen, E. E. Sharpe, and Lorne J. Elliott, Winnipeg.

Thompson & Sons, Limited, Toronto. Capital \$40,000. To carry on a lithographing, printing and publishing business. Wm., R. W. and S. W. Thompson, Toronto.

Grand Falls Company, Limited, Grand Falls, New Brunswick. Capital \$1,200,000. To acquire the water power at Grand Falls, New Brunswick; build groundwood and sulphite pulp mills, paper mills, manufacture cardboard, etc. Sir W. C. Van Horne, H. S. Holt, of Montreal; R. Proctor, of Proctor, Vt.; G. F. Underwood, vice-president of International Paper Company, and B. E. Kingman, of New York; Jas. Robinson, Millerton, New Brunswick, and A. J. Gregory, Fredericton, New Brunswick.

TRADE AND MANUFACTURERS' NOTES

The Belgo-Canadian Pulp & Paper Company has put in a large water wheel made by the William Hamilton Company, Peterborough.

* * *

The Rolland Paper Company, Montreal and St. Jerome, Quebec, send us some beautiful samples of their well-known papers. These comprise superfine linen record, Earncliffe, linen bond, standard pure linen, empire linen bond, crown linen, colonial bond, and fine ledger papers. Those interested in fine paper stock should write to the above firm.

* *

A very handsome new calendar for 1911 is that being sent out to the trade by J. R. Booth, Ottawa, manufacturers of lumber, cardboard, sulphite and paper. The picture is taken from the original by L. R. Dougherty and portrays an American Indian kneeling in the snow, rifle in hand, just at the breathless moment when he hears his prey speeding towards him through the woods.

* * *

The Sherbrooke Machinery Company, Sherbrooke, Quebec, recently shipped machines to the Powell River, British Columbia, Pulp & Paper Company, that company having adopted the economical system of the Sherbrooke Machinery Company. They have also put in two roll wet machines of extra heavy design at J. R. Booth's new groundwood mill at Ottawa. At the Lincoln Paper Mill, Merritton, they have supplied a pneumatic save-all equipment under the new mill.

* * *

The Smart-Turner Machine Company, Limited, Hamilton, Ont., have supplied pumps to the following: Flanand Frere, St. Agapit, Quebec; the Canada Preserving Company, Hamilton; the Merchants Rubber Company, Berlin; the Great Lakes Dredging Company, Port Arthur; the Monarch Knitting Company, St. Catharines; the Toronto Wine Company, Oakville; the heating system of Brown School, Toronto; the Pure Milk Company, Hamilton.

A. H. Mardon, 150 Shaftesbury Avenue, London, England, sends us a copy of a catalogue describing Leunig's paper scale and testing apparatus, which have been taken as the adopted Government standard in England and several European countries. A particularly valuable feature of the booklet under notice is the series of Leunig tables of sizes of papers, usual weights and equivalent weights per ream, with comparative cost and discount tables. Prices 1s. net. Those making large use of paper will find it to their benefit to have one of these books handy for constant reference.

* * *

During the month of November an excellent indication was given of the growing popularity of the Moreau barker, as may be judged from the following shipments made: one machine for the Georgia Pulp Manufacturing Company, Gordon, Georgia; one for the New York & Pennsylvania Company, Johnsonburgh, Pennsylvania; two for the West Virginia Pulp & Paper Company, Davis, West Virginia; one for the Broadland Lumber Company, Champion Sidney, Oregon; two for the Eastern Townships Lumber Company, Quisibis, New Brunswick. The machine can be seen in operation in Montreal, where the representatives are the Canada Ford Company, 710 Canadian Ex. Building. H. W. Petrie & Company are the Toronto agents.



The wiring installation for the multiple variable speed electric drive for the paper making machine in the new Lybster mill of the Lincoln Paper Company, Merritton, has been completed, and is said to be one of the finest pieces of electrical work in Canada. This, says the Labor Gazette, is the third mill in the world with the electric drive, the other two being at Lyons Falls, N.Y.

* * *

The Anglo-Newfoundland Development Company invites public subscription to \$2,500,000 worth of 5 per cent. debenture bonds, secured by mortgage on the plant and properties at Grand Falls.

PARCHMENTIZING INDISPENSABLE FOR ALL CLASSES OF PAPER.

By Aug. Abadie.

A certain number of paper makers imagine that in making use of heavy doses of cellulose they will be able to obtain a good simply sulphurized paper, or even a paper that shall be parchmented and impermeabilized in the degree demanded by their clients. This is quite a mistake. It is true that a cellulose of superior quality will impart a certain hardness to the paper in which it is introduced, but this cellulose, however hard it may be, does not, of itself alone, give the sizing, nor the crispness, nor the impermeability that are the distinctive characteristics of the papers made with the object of imitating sulphurized sorts. Papers of different origins may every day be seen that are entirely made from cellulose, but which possess neither the parchment nor the impermeability nowadays required by the public. These papers may possess a certain gloss, but are not suited to the use for which they are designed; their sizing is poor; if intended for writing purposes, they do not stand the ink-proof. If the papers are intended for wrapping, they are not waterproof, they absorb the damp of the atmosphere, and are prejudicial to the goods that they are intended to shelter.

The means that I have advised to those that have applied to me for advice in the manufacture of parchmented papers consists, in the case of white sorts, in the use of a size prepared from rosins whose impermeabilizing principles have not been injured or destroyed by a too greatly prolonged distillation, meaning a rosin whose shade is not brown, for it is in brown sorts that are introduced the residues of rosin manufacture. These dark shaded rosins naturally give a rosin soap of a dark yellowish brown, which, in its turn, produces a paper that is not pure white, but has a dull shade, and leaves in the sheet an infinite number of dark specks, that in reality are the impurities proceeding from the brown rosin. It is therefore necessary to make use of light colored rosins having a transparent gold shade, in

which, when examined with the magnifying glass, no spot or impurity is to be seen.

In the preparation of parchmented papers, the size, however perfect it may be, with its necessary alum, or sulphate of alumina, does not suffice; it must be accompanied by the substances whose special office is to parchmentize the fibre. All additions of size, alum and special substances take place directly in the beater, are effectuated the same as for the sizing alone, and cause no complication in the work.

Returning to the matter of white papers, a very hard sizing is nowadays demanded in these sorts, in particular since the writing machine is come so much into use and on account of the special inks used for the same. Apart from the above sorts, an impermeable sizing is indispensable for all wrappings, without exception, and above all for Kraft, which, owing to the nature of the pulp of which it is composed, necessitates, more than does any other paper, to be very hardly sized and impermeabilized. I particularly insist on this point, because the numerous samples of Kraft, proceeding from different countries, that are submitted to my appreciation, do not really possess any of the qualities that are indispensable, namely, the impermeabilization and parchmentizing to which I beg to call the attention of all the makers of these sorts.

These same remarks might be applied to alpha, esparto, and manilla papers. These materials, suitably treated, give a very white pulp, but unfortunately the papers made from the same are generally very indifferently sized, although these fibres are susceptible of rivalling with best rag papers, if a good rosin sizing and a demi-parchmentizing are adopted.

In short, the sizing of paper, such as I have now described, joined to the mode of parchmentizing, allows the suppression of the outward sizing with glue; the work is thus simplified, it is cheaper, it better answers to the actual industrial requirements, and the result obtained is infinitely more certain.



Robt. Kirkham, an employee of the Rior-dan Paper Mills at Merriton, had his hand caught in a machine.

PULP AND PAPER NEWS

The Kinleith Paper Company, St. Catharines, recently put in a new couch roll. They report business good and that they are rushed with orders.

* * *

The Miramichi Pulp & Paper Company's mill at Chatham, New Brunswick, is closed down, the reason reported being the slack demand for pulp. Later reports say the mill is getting on its feet again and that it will continue running.

* * *

Elliott Mfg. Co., manufacturers of paper boxes, are making good progress on the erection of their factory near Ashbridge's Marsh, Toronto.

* * *

The name of the firm of Lester W. David Company, manufacturers of wood pulp and lumber, Vancouver, has been changed to Ocean Falls Company, Limited, with offices at 710 Dominion Trust Building, Vancouver.

* * *

The Canada Keg and Barrel Co., which manufactures a form of barrel out of one solid piece of veneer, with heads and bottom of wood fibre, contemplates building a pulp mill, probably at Orillia. W. H. Baker, of 199 Yonge Street, Toronto, is superintendent of the company.

* * *

The E. B. Eddy Co., Hull, Quebec, are applying to Parliament for power to increase their capital stock to \$5,000,000. The additional capital is needed to provide for new branches and warehouses in the West and elsewhere.

* * *

The employees of J. R. Booth, Ottawa, beg to thank the firms who contributed so generously to the fund for their annual ball.

Among the list are Bates & Innes, Carleton Place; Hamelin & Ayers Company, Lachute; Lachute Knitting Company and F. Reddaway & Company, Montreal.

* * *

When subscription lists for the issue of £1,000,000 five per cent. first mortgage bonds of Price Brothers & Company, Limited, which were offered by the Royal Securities Corporation at its offices in Canada, and in London, were closed, announcement was made that the issue had been largely oversubscribed.

* * *

The Foley-Rieger Company, Thorold, report fair business, with good orders, and they are getting rid of all their product without difficulty. The present capacity is about six tons per day shipped to the United States. There is one grinder, but in the spring the number will be increased. A new wet machine is now being installed.

* * *

C. E. Oak, manager of the New Brunswick Railway Company's lands, says that there will be an average cut of about 55 million feet of lumber on the company's lands this winter, but the Miramichi Lumber Company will make a small cut of pulpwood, as the mills of the International Paper Company are overstocked.

* * *

The plant and assets of the Canadian Wood Pulp & Paper Company, which include a large mill at Port Mellon, on Howe Sound, and a tract of 56,000 acres of wood pulp limits on Quatsino Sound, have been disposed of by that company to a syndicate of English capitalists. It is denied, however, that the purchase was made by Lord Northcliffe. It is the intention of the new owners of the property to extend and operate the mill.

A large deal affecting the transfer of 456,320 acres of lumber and pulp land in Labrador was closed by the sale of this property by the owners to a party of New York capitalists. The transfer price of the property was in the vicinity of \$200,000. It is said that there is not less than 700,000,000 feet of saw log lumber on the property and five times the quantity of valuable pulp bearing timber. The New York syndicate intimates that it will at once begin operations on the property.

* * *

Mr. A. E. Millington, general manager of the Spanish River Pulp & Paper Company, Espanola, Ontario, and Mr. Joseph Wallace, of the well-known firm of Industrial Engineers, New York, are making a tour of the principal paper and pulp making centres of Europe to ascertain the latest improvements in the industry in connection with proposed extensions to the present plant of the Spanish River Pulp & Paper Co., which was originally designed by Mr. Wallace.

* * *

The Shawinigan Pulp & Paper Company has bought the rights of the Shawinigan Hydro-Electric Company, which consist of two water-powers, of which one is 1,600 horsepower, on the River Shawinigan. Of this one part has been utilized for the last six years for the development of electric power, and the balance will be used for making pulpwood, adding two mills and a small paper machine. There is another hydraulic power not developed on the River St. Lawrence at the Chutes des Hetres, with a capacity of 20,000 horsepower, two miles from Shawinigan Falls. This will be developed later.

* * *

The Edward Partington Pulp & Paper Company, St. John, has now taken over A. Cushing & Company's lumber mill, and will use it in connection with their paper plant.

* * *

The Lake Superior Corporation has ar-

ranged for the improvement of a considerable portion of the waterfront adjacent to its plants, and it is believed that this will be the site for the new paper mill, about which rumors of late have been busy. W. C. Franz, manager, states that arrangements are being made for the installation of a mill to cost \$1,000,000, but that no definite plans have as yet been made.

* * *

In connection with the incorporation of the Wayagamack Pulp & Paper Company, recently announced in these columns, it may be mentioned that the name is derived from Lake Wayagamack, one of the largest lakes in the vicinity of Three Rivers. A party of financiers interested in this and other companies, and including R. Forget, M.P., and J. N. Greenshields, left for Europe recently, and the understanding is that they will endeavor to place in Paris some of its bonds. The capitalization of the company is \$5,000,000 common stock and \$5,000,000 bonds, of which about \$3,000,000 are already underwritten.

* * *

The Montrose Paper Company, Thorold, recently put in a new Beloit screen as an auxiliary to the preparing plant. A two-storey addition is being put on to the finishing room, measuring 42 by 75 ft., for a plating and linen finishing plant. The new sidings are now completed. The new machinery recently added increases the mill's capacity by 60 per cent. The company is enjoying very brisk business, and lots of orders are coming in.

* * *

The stock and bonds of the East Canada Power & Pulp Company, Murray Bay, Quebec, have been listed on the Montreal Stock Exchange. They amount to \$1,500,000 each. R. Forget is president of the company; C. N. Tooke, vice-president. Contracts have been given to the Bishop Construction Company, Toronto and Montreal, for the development of water powers and building of a pulp mill on the Malbaie River. Geo. F. Hardy, New York, will be the designer.

INDEX TO VOLUME VIII.

Months in parentheses refer to advertising pages of that number.

	Page		Page
A.		D.	
Acetates from E. pario and Soda		Davy Freight Rate Case	17
Pulp Liquor	86	Deckle Straps	196
American Paper and Pulp Association	74	Density of Pulp, Regulating	101
Anglo-Newfoundland Development Company	38	Disinfection of Paper	33
Asbestos Boards	6	Dye, Loss and Change of, on Machine	296
Australia, Canadian Paper in	194	E.	
B.		Eddy, E. B.	84, 259
Beating Engines, Recording Work of	14	Edmonton, Pulp Possibilities Around	213
Beaver, Our Oldest Pulp Manufacturer	72	Education Applied to Pulp Industry	80
Bleaching of Pulp, Chemical Processes in	221	Eibel Process, Threatened Suits Over	150
Blotting Paper, Preparing Cotton Half Stuff for	125	Expansion in Paper, Causes of	102
Board Making	144	F.	
British Columbia Forestry Regulations	290	Fading of Colors on Paper Machine	50
British Wood Pulp Association ..	17	Federation of the World, Canada's Mission in	204
Brompton Pulp and Paper Co. ..	147	Fernow, Appreciation of Dr.	54
C.		Fibre Drying System	292
Campbell Lumber and Pulp Mills..	21	Finland, Mechanical Pulp in	195
Canada's Mission in Federation of the World	204	Finnish Pulp Problem	151
“ Competition in Wood Pulp Market	218	Forest Reserves Act	44
“ Copyright	282	“ New Brunswick	104
“ Progress in Pulp and Paper	280	“ Products of Canada	147
“ Pulp and Paper Industry, Development of	227, 285	“ Service, Reorganization of Quebec's	244
Canadian Forestry Association	45, 60, 88, 284	“ Fire Menace	253
“ Pulp and Paper and United States Newspapers	111	Forestry Work in Dominion Forests ..	3
“ Trade in Paper and Pulpwood	170, 255, 285	“ Quebec School of	219
Cellulose, Soluble	47	“ Regulations in British Columbia	290
Cement Floors for Mills	167	Fort Frances Power Question	132
Chemical Engineers, Am. Inst. of..	184	“ “ Large Pulp Industry (Aug.)	54
Clothing Material, Wood Pulp as..	150	Freight Rates, Paper	171
Colonial Wood Products Company..	299	French Customs Tariff	22
Color of Paper in the “Look Through”	197	Furnace for Recovery of Soda	291
Combine, Paper, in United States..	7	G.	
Conservation Commission	14	Gagne, Death of Stanislas	117
“ of Natural Resources	20	Gouin Policy Effect of	292
Copper Pyrites in Pulp Trade	231, 254	Grand Falls Power and Pulp Co..	43
Copying and Printing Papers, Manufacture of	274, 297	“ Trunk Strike	175
Copyright, Canadian	282	H.	
Cornwall Paper Manufacturing Co.	45	Hand Made Papers	126
Corrosion of Metals by Paper	272	Hastings, A. C. and the Publishers ..	282
Couching Felts, Unusual Wear of..	39	High-Speed Waste	88
		Horse Shoes, Paper	46
		Hudson's Bay Railway	32
		I.	
		International Paper Co. Strike	105, 140
		“ Relations, Paper Industry in	235

	Page.		Page.
J.		" Materials 30 Years Ago...	51
Japan, Packing Paper for	51	" Canada's Trade in	91
Jenney Pulpwood Carrier.....220,	259	" Expansion in	102
K.		Parchmentizing Indispensable ...	303
King, The Peace-Making	137	Pasteboard, Manufacture of	10
Kraft Brown Paper 199, 168, 194,	268	Patents, Pulp and Paper	237
L.		Peat Mosses, Utilization of	193
Lafamme, The Late Mgr.	184	Pinchot, Embroglio	4
Laid Papers, Manufacture of ...	13	Price Bros., New Mill	263
Lake Nepigon Pulp Limits	135	Prices in Canada, Wholesale	293
Langelier, Death of J. C.	134	Programme Paper, Noiseless	124
Lignine, Determination of, in Sulphite Pulp	12	Progress in Sulphite Mills ...224,	244
Looking for Trouble	252	Pulp, Causes of Inconsistency of..	5
Loss and Change of Dye on Machine	296	" and Paper, Canada's Progress in	280
M.		" and Paper Manufacturers, Meeting of	295
Machine Tender's Experience	212	" and Paper Markets. See each issue.	
" Wres	273	" and Paper News. See each issue.	
Machines, Large or Small	27	" Varying Mechanical	42
Magnesia in Sulphite Making	271	" Market for 1909, Foreign ..	75
Mexico, Canadian Paper in	121	" Canada's Trade in	91
Montreal Pulp and Paper News..19,	41, 68, 89, 114, 141,	" Regulating Density of	161
Mouldiness in Pulp	95	" Thickeners	126
N.		" as a Clothing Material	150
Nation's Rights Not for Public Sale	250	" Chemical Processes in Bleaching of	221
National Paper Trade Association	73	" and Paper Industry, Development of Canada's	227
New Brunswick Forests	104	" Mill and Paper Mill, Relation of	265
Newfoundland in Line	2	Pulpwood Export and Forestry Convention	59
" Mechanical Skill in Pulpwood Licenses.	80	" Prohibition and Tariff War	71
Newspaper, Weight and Strength of	2	" Prohibition in Maritime Provinces	83
" Production of	149	" Policy, Quebec's ...110,	152
" in United States	262	" Country, The Northern	131
Norris, Mr., Figuring	32	" Export of Quebec's ...	202
" Bulletins	177	" Nova Scotia	243
Norwegian Wood Flour	37	" Storage and Handling of	250
" Paper Trade	44	Purification of Waste Water	185
Norway and Sweden, Situation in..	229	O.	
Nova Scotia Pulpwood	243	Quebec, Riches of Northern	1
O.		" Stand- Pat	4
Ontario's New Timber Policy	110	" Hinterland, Natural Resources of	15
P.		" Pulpwood Policy	109
Paper, Noiseless Programme	124	" Limit Holders' Association	167,
" Hand-Made	126	" Pulpwood Export of	202
" Exports to United States ..	133	" Copper Pyrites in Pulp Trade	231
" Ribbed	171	" School of Forestry	239
" Trade in International Relations	235	R.	
" Manufacture of Copying and Printing	274, 297	Reciprocity With United States..129,	225, 249,
" Weight and Strength of News	2	Reeling Machine and its Work	100
" Treatment of Waste	11	Ribbed Paper	171
" Effect of Storing	25		
" Statistics	26		
" Canadian in Australia ...26,	104		
" Disinfection of	33		
" Trade, Norwegian	45		
" Surface-Glazed	48		

	Page.
Rolland, Hon. J. D.	234
Rosin, Estimation of, in Sulphite Pulp	46
Rowley, W. H.	240
Russia As a Pulp Producer.....	40

S.

Safeguarding Steps Over Paper Machinery	113
Safety Devices in Pulp Mills	85
Scandinavian Pulp and Paper Markets	248
Selenium in Sulphite Lyes	124
Sherbrooke Machinery Co.	221, 243
Sizing, Bad, From Wet-Beaten Stuff	123
" With Starch	140
Smart-Turner Stuff Pump	38
Smith, The Late Goldwin	130
Soda, Furnace for Recovery of	201
Soo, Paper Mill at	261
Spanish River Pulp and Paper Co.	294
Spent Liquors	48
Statistical History of Canadian Pulp and Paper Trade, Etc. ..	285
Storing Paper, Effect of	25
Strength, Ways of Determining ..	191
Sugar Cane as Paper Stock	151
Sulphate Pulp and Kraft Paper...	99
Sulphide of Sodium in Sulphate Pulp Lyes	219
Sulphite Pulp, Estimation of Rosin in	46
" " How I Made, With 8 per cent. Sulphur	153, 179, 207
" " Determination of Lignine in	172
" " Mills, Process in	224, 244
" " Making, Magnesia in	271
Sulphur Consumption of, in Sulphite Mills	191
Surface-Glazed Paper	48
Surtax, Abolition of German	56
Swedish Pulp Conditions (Apr.)..	50, 207

T.

Tariff, New French	22
" Preparations, United States ..	30
" Dilemma	55
" The Canadian	201
Technical Education	229, 300
Temiskaming, Agricultural	173
Transmission Machinery in Paper Mills	145

Page.

U.

United States Tariff Preparations..	30
" " Relations With	81, 176
" " Newspapers and Canadian Pulp and Paper	111
" " Reciprocity With	129
" " Paper Exports to	133
" " Situation in	187

V.

Valhalla-Hixon Chlorinator	161
----------------------------------	-----

W.

Wallace, Jos. H. & Co.	206
Waste Paper, Treatment of	11
" of Paper	112
" Water from Sulphite Mills, Purification of	185
Water Powers, Canadian	56
" " in Sudbury District ..	72
Wavy Edges of Ivory Cardboard ..	12
Western Canada Bag, Envelope and Boxboard Co.	102
Wet Presses	13
Wood Flour	37
" Statistics of Use of	173

Pulp Mill Machinery for sale

We offer the following second-hand, but in first-class condition:—

Eight 8-plate Flat Suction Screens, complete with screen plates cut .001".

Two 10-plate Flat Suction Screens, complete with screen plates cut .0014".

One 8" Northey Centrifugal Pump, little used, very heavy pattern.

One 5½ x 12 Northey Post Stuff Pump, in first-class shape.

Two Horizontal Rotary Sliver Screens; will handle stock from four to six stone.

One Rivetted Steel Air Pressure Tank, 30 lbs. x 8'-0", capacity 288 gallons, working pressure, 250 lbs, complete with gauge glass and gauge.

Address for particulars and prices, PULPMILL, c/o Pulp and Paper Magazine.

TS
1080
P837
v.8
Forestry

Pulp and paper magazine

Pulp and paper magazine of
AUTHOR Canada

TS
1080
P837
v.8

TITLE

(118508)

DATE

ISSUED TO

CAN

(118508)

LIBRARY
FACULTY OF FORESTRY
UNIVERSITY OF TORONTO

